

Occurrence and location of Transmissible Venereal Tumors in Dogs seen at the Universidade Federal Rural do Rio de Janeiro Veterinary Hospital: Oncology Sector between 2010 and 2014*

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ABSTRACT. Araujo D.C.C., Antonioli T., Costa T.S., de Carvalho J.R.G., Laguna A.G.V., Ramadinho R.H.R. & Fernandes J.I. **Occurrence and location of Transmissible Venereal Tumors in Dogs seen at the Universidade Federal Rural do Rio de Janeiro Veterinary Hospital: Oncology Sector between 2010 and 2014.** [Ocorrência e localização do Tumor Venéreo Transmissível em cães atendidos entre 2010 e 2014 no Setor de Oncologia do Hospital Veterinário da Universidade Federal Rural do Rio de Janeiro, Brasil.] *Revista Brasileira de Medicina Veterinária*, 38(3):277-280, 2016. Programa de Residência em Medicina Veterinária, Instituto de Veterinária, Universidade Federal Rural do Rio de Janeiro, BR-465, Km 7, Seropédica, RJ 23851-970, Brasil. E-mail: dayanecaico@hotmail.com

The Transmissible Venereal Tumor (TVT) is a round cell neoplasm mostly affecting the genital of dogs. They can affect both sexes, and most animals are sexually active. Metastases, which occur in less than 5% of cases, occur through lymphatic or hematogenous. Diagnosis can be made by cytology and the most effective treatment is chemotherapy with vincristine sulfate. This study reports the occurrence of TVT from January 2010 to December 2014 in the UFRRJ Veterinary Hospital at the Oncology sector; clinical records were reviewed: 1,522 animals were seen and 123 (8.08%) presented TVT. Of 123 animals afflicted, 71.54% were adults, 23.57% were senior and 4.87% had less than a year. A higher frequency of females (74) was observed, when compared to males (49). A higher incidence in mutts (78.05%) was found, followed by poodles (7.32%), pinscher and Labrador (3.25%). Genital location was most common (79.04%), followed by a genito-cutaneous presentation (8.94%), nasal (5.69%), cutaneous (5.69%) and ocular (0.81%). It can be linked with large quantities of stray dogs and poor animal control policies in the region.

KEY WORDS. TVT, neoplasm, Sticker cell, canine, venereal tumor.

RESUMO. O Tumor Venéreo Transmissível (TVT) é uma neoplasia de células redondas que acomete principalmente a genitália de cães. Podem acometer ambos os sexos e, a maioria dos animais são sexualmente ativos. As metástases, que ocorrem em

menos de 5% dos casos, acontecem por via linfática ou hematogênica. O diagnóstico pode ser feito por meio de citologia e o tratamento mais eficaz é a quimioterapia com sulfato de vincristina. O objetivo do trabalho foi relatar a ocorrência do TVT no pe-

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río de janeiro de 2010 a dezembro de 2014 no Setor de Oncologia do Hospital Veterinário da UFRJ. Para isso, foram revisados os registros nos livros de atividades e as fichas clínicas dos animais. Foram atendidos 1.522 animais oncológicos, desses 123 (8,08%) foram diagnosticados com TVT. Com relação a faixa etária 71,54% dos animais eram adultos, 23,57% idosos e 4,87% filhotes. Foi observado uma maior frequência de fêmeas com 74 animais e 49 machos. Foi encontrado uma maior incidência de cães sem raça definida (78,05%), seguidos por cães da raça Poodle (7,32%), pinscher e labrador (3,25%). Quanto à localização do tumor 79,04% era genital, 8,94% genital e cutânea, 5,69% nasal, 5,69% cutânea primária e 0,81% ocular e ocular e cutânea.

PALAVRAS-CHAVE. TVT, neoplasia, células de Stiker, canino, tumor venéreo.

INTRODUCTION

The canine transmissible venereal tumor (cTVT) is a round cell neoplasm that affects, mainly, the genitalia of dogs. Its histological origin has yet to be established, none the less, histochemical studies have pointed to a histiocytic type of cell origin (Costa 2008). This type of tumor is more frequently found in females, and is transmitted by coitus or by experimental transplant (Brandão et al. 2002). It has been observed that the majority of afflicted animals are sexually active adults (Souza et al. 2006).

Metastasis occurs in less than 5% of cases, by hematologic or lymphatic route (Nielsen & Kennedy 1990). A histological study made demonstrated that the most common localization of the tumor was genital, followed by cutaneous, nasal cavity and superficial lymph nodes (Lima 2011)

Among the main clinical signs, we can observe the drainage of a serosanguinous secretion, foul smell, licking of the affected region, dysuria, ulceration and necrosis (Costa 2008). The mass can present a *cauliflower-like* aspect, they can be solitary or multiple, and have a friable consistence.

The diagnosis of this tumor is based on patient history and clinical signs, and confirmed by cytology and/or histopathology. In the majority of cases, cytology can prove to be a very useful technique in diagnosis, being fast, easy to perform and mostly inexpensive (Magalhães et al. 2001).

Chemotherapy with vincristine sulfate is the first choice of treatment for TVT and it has shown to be efficient. Its dose can vary from 0,50 mg/m² to 0,75 mg/m², applied weekly for four to six weeks (Rodaski & De Nardi 2006). In a study performed by Silva et al. (2007), total remission of the tumor

was observed in 80% of the animals treated following five applications (Silva et al. 2007).

In Brazil, a high occurrence of TVT is observed, however few studies on epidemiology have been published. After statistically evaluating files from patients treated at the Oncology sector of the Universidade Federal do Paraná Veterinary Hospital, between 1998 and 2002, according to De Nardi et al. (2002) cTVT was the third most frequent neoplasm (3,30%), following by mammary tumors (45,63%) and mastocitoma (11,10%)

The goal of this study is to report the occurrence of cTVT and its localization, in cases seen at the Oncology Sector in the Universidade Federal Rural do Rio de Janeiro Veterinary Hospital between January 2010 and December 2014.

MATERIALS AND METHODS

Activity logs and record books, at the Oncology Sector in the Universidade Federal Rural do Rio de Janeiro Veterinary Hospital, starting January 2010 until December 2014 were reviewed. All cases clinical files pertaining animals diagnosed with cTVT, by cytology or histopathology, were selected. Animals with inconclusive diagnoses, animals seen by professionals in other sectors of the hospital and follow-up patient files were not included in the analysis.

Information like sex, age, breed and tumor localization were evaluated. Relating to age, animals were categorized in three groups: puppies (including animals less than a year old), adults (from one to seven years old) and seniors (more than seven years old).

To confirm the data, the anamnesis and history of all clinical files was reviewed and the counts were made in absolute numbers.

RESULTS

In a five year period 1522 consultations were made in the Oncology sector, taking into account only new patients (no follow-up consultations were included). Of these, 123 (8,08%) cases were confirmed diagnoses of canine TVT. Most of the diagnoses were obtained by fine needle aspiration cytology. Concerning age, it was observed that from 123 case of cTVT, 88 animals (71,54%) were adults, 29 animals (23,57%) were senior and the six remaining animals (4,87) were puppies. Relating to sex, 74 (60,16%) of the animals were female and 49 (39,83%) were male.

The tumor was mostly observed in mutts (96 animals) showing a 78,05% of the 123 cases. The rest of the animals were nine poodles (7,32%), four pinschers and four labrador (3,25% each). The total distribution of the observed breed can be found in Table 1.

Table 1. Breed distribution of dogs diagnosed with cTVT at the Oncology Sector in the UFRRJ Veterinary Hospital from 2010 to 2014.

Breeds	Positive Animals	
	Number	Percentage
Mutt	96	78,05
Poodle	9	7,32
Pinscher	4	3,25
Labrador	4	3,25
PitBull	3	2,44
Teckel	2	1,63
Boxer	2	1,63
Yorkshire	1	0,81
Cocker Spaniel	1	0,81
Cocker	1	0,81
Total	123	100,00

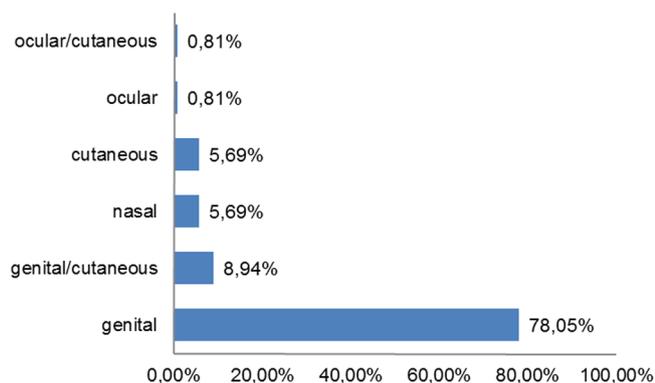


Figure 1. Localization of cTVT diagnosed at the Oncology Sector in the UFRRJ Veterinary Hospital from 2010 to 2014.

Of the 123 cases studied 96 (78,04%) had a genital localization, 11 (8,94%) presented a simultaneous genital and cutaneous localization, 7 (5,69%) presented a nasal tumor, 7 (5,69%) presented a primarily cutaneous tumor, one animal (0,81%) presented an ocular lesion and one animal (0,081%) presented both ocular and cutaneous lesions (Figure 1).

DISCUSSION

Canine Transmissible Venereal Tumor is described as one of the most frequently diagnosed round cell neoplasm (Rosseto et al. 2009). It is described as the reproductive system tumor with highest incidence; a study by Priebe et al. 2011 reported cTVT in 50% of cases of tumors in this system. At the Oncology sector of the UFRRJ Veterinary Hospital, cTVT represented 8,08% of the total neoplasms diagnosed. This is similar to the result observed by Andrade et al. (2012), that classified tumors of the reproductive system as the third most frequent.

The elevated occurrence of cTVT in the present study reflects the regional profile, where population control policies are scarce and the number of vagrant and peridomiciliar dogs is high.

The most afflicted age group was adult animals. These results coincide with observations by Silva et al. (2007), where the most afflicted animals (55,68%) had between three and five years; and by Lima et al. (2011) that observed a higher occurrence (55,5%) in animals between two and five years. Both studies relate these findings with a greater sexual maturity and sexual activity in the animals.

The majority of authors haven't observed a sexual predisposition. However, the higher frequency in females found in this study supports findings from other studies (Sousa et al. 2000, Brandão et al. 2002) and can be justified by the fact that a single stricken male can copulate with various females. There are studies with different results, like the one published by Amaral et al. (2004), where 53,1% of animals with cTVT were male, reinforcing the apparent lack of sexual predisposition.

The greatest occurrence was in mutts (78,05%) and this is related with a higher risk of transmission (vagrant, street and peridomiciliar unneutered dogs) and not on a racial predisposition. This correlates with finding from other studies (Sousa et al. 2000, Brandão et al. 2002). This profile, associated with low socio-economic conditions in the region was also observed by Silva et al. (2007) and Lima et al. (2011).

A genital localization of the tumor was most frequently observed (78,04%) and has been described as the most common site for this type of tumor, it reflects the greater sensitivity of the genital mucosa, in males and females, to neoplastic cell implantation. Other epidemiological studies share this finding (Brandão et al. 2002, Silva et al. 2007). A simultaneous genital and cutaneous presentation was observed in eleven animals. An ocular presentation and a simultaneous ocular and cutaneous presentation were observed one time each. Furthermore, some animals presented more than one cutaneous lesion, with tumor implantation in more than one local being unlikely.

The simultaneous genital and cutaneous presentations observed in the present study are similar to those described by Moutinho et al. (1995).

Although metastases occur in less than 5% of cases (Nielsen & Kennedy 1990), we can report cTVT cases with long evolutions, these types of cases could be a justification for the occurrence of metastases.

The cutaneous form of this tumor, observed in seven animals, is considered rare. It represents 0,5% of cutaneous tumors according to Souza (2006). The nasal presentation was the third most frequent, similar

to findings by Brandão et al. (2002) and it normally occurs by implantation due to dogs sniffing habits.

CONCLUSIONS

With this study it can be stated that cTVT presents a high incidence in the region, mainly due to the large number of vagrant and peridomiciliar animals. Our finding regarding tumor localization are similar to those described by other authors, were a genital localization was found in nearly 80% of cases. Nonetheless, extragenital localization: cutaneous, nasal and ocular can be diagnosed, even in the absence of a genital tumor. Mutts were the most afflicted race, and no sexual predisposition was observed.

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