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## INTRAOCULAR TRANSMISSIBLE VENEREAL TUMOR IN A DOG

### TUMOR VENÉREO TRANSMISSÍVEL INTRA-OCULAR EM CÃO

Geórgia Nadalini Rodrigues<sup>1</sup> Antonio Carlos Alessi<sup>2</sup> José Luiz Laus<sup>3</sup>

### RELATO DE CASO

#### SUMMARY

*Canine transmissible venereal tumor (TVT) is a round cell neoplasm occurring on the external genital mucosa of male and female dogs. Transmission is by cell implantation during coitus, licking, or other interaction between an affected dog and a susceptible host. Metastasis of the tumor rarely occurs. This report describes an unusual presentation of TVT with intraocular involvement and inguinal lymph nodes metastasis. The subject was a six-year-old, intact, male, Brazilian Terrier dog with a history of abnormal masses in the right eye, penis and several subcutaneous nodules in the inguinal area. Histopathological examination of the eye specimens as well as cytologic examination of penile mass and subcutaneous nodules revealed similar findings. The examination revealed round cells containing a large nuclei with prominent, central located nucleoli and a pale cytoplasm containing few small, clear round vacuoles. Histologically, the subcutaneous nodules in the inguinal area were lymph nodes. The diagnosis of TVT with intraocular involvement and lymph nodes metastasis was based on clinical, cytologic and histopathologic findings.*

**Key words:** transmissible venereal tumor, eye, neoplasms, dog.

#### RESUMO

*Tumor venéreo transmissível (TVT) é uma neoplasia de células redondas que acomete a mucosa genital externa de cães, machos e fêmeas. A transmissão decorre da implantação de células tumorais durante o coito, brigas ou interações entre animais portadores e susceptíveis. Existem relatos referindo-se a localizações atípicas do TVT, mas metástases raramente ocorrem. O presente relato descreve um caso incomum de TVT, com acometimento intra-ocular e metástases nos linfonodos inguinais, num cão Terrier Brasileiro, com seis anos de idade. O animal apresentava massas anormais de tecido no olho direito,*

*extremidade do pênis e aumento de volume de linfonodos da região inguinal. A histopatologia do globo ocular e as citologias da massa peniana e dos nódulos subcutâneos evidenciaram aspectos citológicos semelhantes, caracterizados por células redondas com núcleo grande e nucléolo proeminente localizado centralmente. O citoplasma apresentou-se pálido e com presença de vacúolos pequenos e arredondados. O diagnóstico de TVT com acometimento intra-ocular e metástases em linfonodos foi baseado nos achados clínicos, citológicos e histopatológicos.*

**Palavras-chave:** tumor venéreo transmissível, olho, neoplasia, cão.

#### INTRODUCTION

Canine transmissible venereal tumor (TVT), formerly denominated transmissible venereal sarcoma and Sticker's tumor is a round cell neoplasm occurring on external genital mucosa of male and female dogs (BATAMUZI & BITTEGEKO, 1991; KROGER *et al.*, 1991; BRIGHT *et al.*, 1983; MOUTINHO *et al.*, 1995; MOZOS *et al.*, 1996; HILL *et al.*, 1984; COHEN, 1985; MARCHAL *et al.*, 1997). Transmission is by cell implantation during coitus, licking, or other interaction between an affected dog and a susceptible one (BATAMUZI & BITTEGEKO, 1991; KROGER *et al.*, 1991; GINEL *et al.*, 1995; MILLER *et al.*, 1990; MOZOS *et al.*, 1996; HILL *et al.*, 1984). Young, sexually active dogs are at greatest risk of contracting the neoplasm (MILLER

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*et al.*, 1990). The infective cells are transplanted and grow like a graft (KROGER *et al.*, 1991). Metastasis are rare, less than 5% of reported cases (KROGER *et al.*, 1991; YANG, 1987) but it has been reported in lymph nodes, nasal passages, liver, pancreas, brain, lung, kidney (AMBER & ADEYANJU, 1986; GINEL *et al.*, 1995; BRIGHT *et al.*, 1983; KROGER *et al.*, 1991; MOUTINHO *et al.*, 1995; MOZOS *et al.*, 1996; VICENTE *et al.*, 1987; YANG, 1987) and eye (DOMINA, 1979; NAYAK & SAMADDAR, 1988; MILLER *et al.*, 1990). The exact cytogenetic origin of TVT remain unknown. Recent reports have supported the hypothesis of an histiocytic origin (COHEN, 1985; MARCHAL *et al.*, 1997; MOZOS *et al.*, 1996; SANDUSKY *et al.*, 1987).

### CASE REPORT

The subject was a six-year-old, intact, male, Brazilian Terrier dog referred to the Veterinary Hospital of University of Sao Paulo State - UNESP - Jaboticabal - Brazil with a history of a ocular disease. The dog was well nourished and in good physical condition. There was a cauliflower-like growth on the extremity of the penis. The growth was fleshy, pink, friable and ulcerated. It bled after manipulation, even if slight. There were also several subcutaneous nodules in the inguinal area. Impression smears from penile mass and fine-needle aspirates from the subcutaneous nodules were performed. Routine hematologic studies did not reveal any abnormal changes. Ophthalmic examination revealed a pink mass protruding from the sclera at the superior temporal area of the eye and filling the anterior chamber of the right eye. Enucleation of the right eye was performed because of extensive and irreversible intraocular damage (Figure 1), and the globe was processed for histopathological examination.

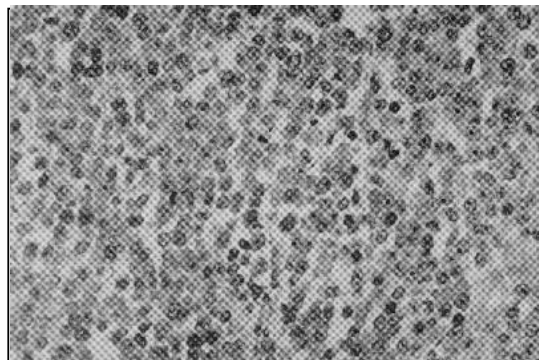


Figure 1 – Ocular transmissible venereal tumor in a dog with a mass filling the anterior chamber and protruding from sclera of the eye.

### RESULTS AND DISCUSSION

Histopathological examination of hematoxylin and eosin-stained eye specimens revealed uniform round cells containing eosinophilic cytoplasm and large nuclei with prominent, central located nucleoli. Frequent mitotic figures were observed (Figure 2). The cytologic preparations from fine-needle aspirates of the subcutaneous nodules and the impression smears of penile mass were suitable for diagnostic purpose. The examination of Rosenfeld-stained cytologic preparations revealed the nuclei of tumor cells contained purple aggregates of chromatin and a single, prominent blue nucleolus. The cytoplasm was pale blue, agranular, and contained few small, clear round vacuoles. The nuclei were large in relation to cell size. Also, it revealed that subcutaneous nodules in the inguinal area were lymph nodes. The diagnosis of TVT was based up on clinical, cytologic and histopathologic findings.

After the definitive diagnosis was made, the dog was treated weekly with vincristine (Oncovin; Eli Lilly do Brasil) at a dose of 0.025mg/kg intravenously for six weeks. During that time the dog's condition improved significantly and the tumor regression was clinically evident within first week of treatment. No adverse effects were observed.

Extragenital canine TVTs have been reported, however most extragenital cases of canine TVT are result of either heteroimplantation or autoimplantation. Metastasis by hematogenous or lymphatic route are very unusual. This case allowed us to confirm a inguinal and femoral lymph nodes metastasizing TVT because there were not external lesions in these areas and direct contact is necessary to infective cells implantation on the host. The

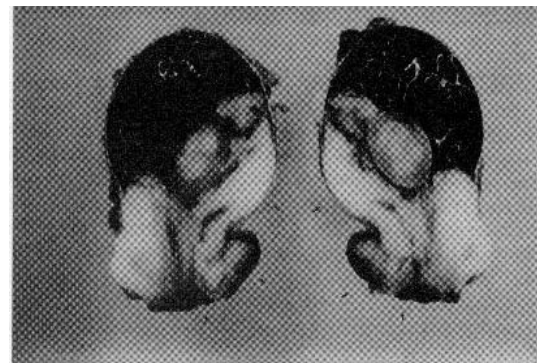


Figure 2 – Histopathology of canine transmissible venereal tumor showing uniform sized cells and mitotic figures (H&E stain,x40).

intraocular TVT cannot to be confirmed like a metastatic case because direct contact is possible due to the localization of the eye. This intraocular TVT could be a metastasis or an implantation of TVT cells by direct contact, but the growth pattern of this intraocular involvement could suggest a metastatic case. The TVT growth pattern is most by expansion spread with small infiltrative feature. If this case was an implantation of TVT cells directly over ocular surface the probable tumoral growth was outwardly, but the findings was the opposite with a internal involvement of all anterior camara and intact external corneal layers with tumoral tissue protruding from the eye across sclera. The TVT metastasis in lymph nodes permit to inquire about the possibility of intraocular TVT metastasis too, but it is not possible to confirm. The intraocular TVT resulting from metastasis is rare and by direct implantation is not frequent however both have to be considered in intraocular disease. Transmissible venereal tumors must be differentiated from other round cell tumors, namely mast cell tumor, histiocytomas, and lymphosarcomas. The combination of epidemiological, clinical, cytologic, and histopathological findings allowed a definitive diagnosis of TVT.

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