

Primary Nasal Transmissible Venereal Tumour in a Geriatric Dog

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ABSTRACT

Background: The Transmissible Venereal Tumour (TVT) is a round cell neoplasm that affects dogs. Its localisation is predominantly venereal; however, it can be found in extragenital regions, such as skin, nostrils, mouth and eyes. This paper describes a case of nasal TVT in a geriatric dog, performing its clinical, laboratory, therapeutic and prognostic analysis.

Case: A 13-year-old male dog, mixed breed, non-castrated, domiciled, weighing 19,200 kg, was attended at the Small Animal Medical Clinic (CMPA) of the University Veterinary Hospital (HVU) of the Multidisciplinary Centre of the Barra Campus, Federal University of Western Bahia (UFOB), presenting cachexia, reactive lymph nodes except the popliteal ones, dehydration, dyspnoea, arrhythmia, frequent sneezing with serous and yellowish nasal discharge, cough, difficulty in breathing, increased volume in the face (left nasal plane), enlarged volume above the right eye with a suppurative wound just below. The animal's haemogram revealed the presence of normocytic normochromic anaemia, neutrophilic leukocytosis with left regenerative shift and hyperproteinaemia. The serum biochemical tests for renal function (urea and creatinine) and hepatic function (ALT, AST and AF) showed normal levels. The cytological evaluation showed a monomorphic population of large cells with a round nucleus, condensed chromatin and 1 to 2 prominent nucleoli, abundant and slightly basophilic cytoplasm, with multiple punctuated vacuoles, showing discrete anisocytosis and anisokaryosis and mitotic figures, confirming a case of TVT. In addition, the presence of neutrophils was evidenced, indicating an inflammatory process. Simultaneously, an X-ray of the skull was requested, which was not returned. A chemotherapy protocol was instituted using vincristine sulphate [0.025 mg/kg IV], for 5 sessions with an interval of 1 week between each session, clinical and laboratory monitoring of the regression of neoplastic cells, demonstrating total efficacy. It is worth noting that after the 2nd application of the pharmaceutical, the animal presented adverse reactions, with clinical symptoms of emesis, decreased appetite and weight loss; so, the animal was then subjected to fluid therapy, treatment with immunostimulants, appetite stimulants and antiemetics, which influenced its clinical improvement.

Discussion: The importance of complementary diagnostic tests in the routine of veterinary clinics and hospitals is noticeable, aimed at establishing the diagnosis and therapeutic monitoring of diseases. In the present report, diverging from the majority of cases described in the literature, the animal showed signs of neoplasia at 13 years of age, in a context of reduced sexual activity. It is believed that the fact that he has free access to the street and has olfactory habits inherent to the canine species in terms of contact with the genital region of other animals, left him exposed to factors that determined the transmissibility of the neoplasm. Weekly clinical follow-up as well as laboratory tests, was essential to ascertain the effectiveness of the treatment, the presence of adverse reactions and the introduction of new drugs. The normocytic normochromic anaemia possibly occurred in response to the nodular and haemorrhagic characteristics of the tumour tissue. The leukocytosis due to neutrophilia and hyperproteinaemia would be related to the occurrence of an acute infectious process, probably bacterial. It is concluded that although geriatric patients present immunosuppression more easily than other age groups, in cases of TVT, the therapeutic approach with vincristine sulphate, and the clinical and laboratory follow-up adopted influence the good prognosis concerning neoplastic regression.

Keywords: TVT, neoplasia, neoplasm, neoplastic disease, elderly, old dog.

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INTRODUCTION

The Transmissible Venereal Tumour (TVT), is a round cell neoplasm that affects dogs [2], with transmissibility related to the implantation of neoplastic cells mechanically through coitus, excessive licking, scratching or biting of the genital area [9].

The localisation is predominantly venereal; however, it can be found in extragenital regions such as skin, nostrils, mouth and eyes [10]. This extragenital involvement and metastasis can occur through direct contact, lymphatic or haematogenous route [13,15].

Dogs with nasal DVT usually present with signs of dyspnoea, nasal discharge, epistaxis, sneezing, facial deformity, bone tissue erosion, tenderness, and dysphagia due to dissemination to the soft palate and dental alveoli [12].

The diagnosis of this condition is based on the history and clinical examination of the animal; is confirmed by aspiration cytology, tissue imprinting or histopathological examination [9]. Due to good tumour regression response and cost-benefit, vincristine sulphate has proven to be effective in the treatment of TVT, constituting the drug of choice [14]. Works approaching the description of the treatment in geriatric dogs are scarce. It is emphasised that despite the efficiency demonstrated by chemotherapeutic drugs, side effects such as alopecia, delayed growth of the fur, skin ulcers, vomiting, diarrhoea, constipation, renal insufficiency, hypersensitivity reactions, cardiac toxicity and neurotoxicity may occur [8]. This could be enhanced by the advancing age of the animals.

This paper describes a case of nasal TVT in a geriatric dog, performing its clinical, laboratory, therapeutic and prognostic analysis.

CASE

A 13-year-old male dog, mixed breed, non-castrated, domiciled, weighing 19,200 kg, was attended at the Small Animal Medical Clinic (CMPA) of the Multidisciplinary Centre of the Barra Campus, Federal University of Western Bahia (UFOB). As the main complaint, the owner reported the presence of 2 nodules on the face of the animal, located below the right eye (1 in the dorsal region and the other in the ventral region), with a history of subsequent fistulation and the emergence of another nodule near the left eye, with an evolution of approximately 6 months. She highlighted frequent sneezing with serous and yellow

with nasal discharge, cough, breathing difficulty and local alopecia. The institution of a previous therapy was reported based on the combined administration of amoxicillin and azithromycin, and the prescribed dose and administration interval were not informed; according to the owner, the animal showed a reduction in the secretion, but soon afterwards there was an increase in the size of the nodules.

On physical examination, the animal presented a body score of 2, very lean [11], reactive lymph nodes except for the popliteal ones, dehydration, altered Capillary Filling Time (CFT) of 3 s, dyspnoea, and arrhythmia. Volume enlargement on the face (left nasal plane), and volume enlargement above the right eye with a suppurative wound just below were visualised (Figure 1A). The presence of yellowish ocular secretion in the left eye was also evidenced.

Blood samples were collected and a blood count and renal (urea and creatinine) and hepatic (ALT, AST, and FA) biochemical tests were requested.

Cytological samples were collected by fine-needle aspiration puncture (FNAP) from the face region - dorsal and ventral portions of the right eye and samples of the nasal plane. Microbiological culture of the nasal purulent content and cranial X-ray were also requested, specifying the left lateral (LL), right lateral (RL) and ventral dorsal (VD) projections. The hemogram revealed the presence of a clinical condition of normocytic normochromic anaemia, neutrophilic leukocytosis with regenerative left shift and hyperproteinaemia.

In serum biochemical tests of renal and hepatic function, normality rates were observed.

The cytological evaluation showed a monomorphic population of large cells with a round nucleus, condensed chromatin and one to two prominent nucleoli, abundant and slightly basophilic cytoplasm, with multiple punctate vacuoles, showing slight anisocytosis and anisokaryosis and mitosis figures confirming a case of TVT. Additionally, the presence of neutrophils was evidenced, indicating an inflammatory process (Figure 2A and 2B).

There was no response to the request for radiographic examinations. The therapy adopted was the chemotherapy protocol using vincristine sulphate⁶ [0.025 mg/kg IV, 5 sessions with an interval of 1 week between each session]. After the 1st application, 7 days later considerable involution of the tumour in the nasal region was noted (Figure 1B). The treatment lasted a total of 1 month and 17 days. Hemogram tests were



Figure 1. Canine Transmissible Venereal Tumour (TVT) - Weekly follow-up of the clinical involution after the application of 5 sessions of vincristine sulphate. A- Presence of nodule below the right eye and suppurative wound. B- Involution of nodules of the nasal region after the 1st chemotherapy session. C- Involution of nodules of the nasal region after the 2nd chemotherapy session. D- Total lesion regression - animal after the 5th chemotherapy session.

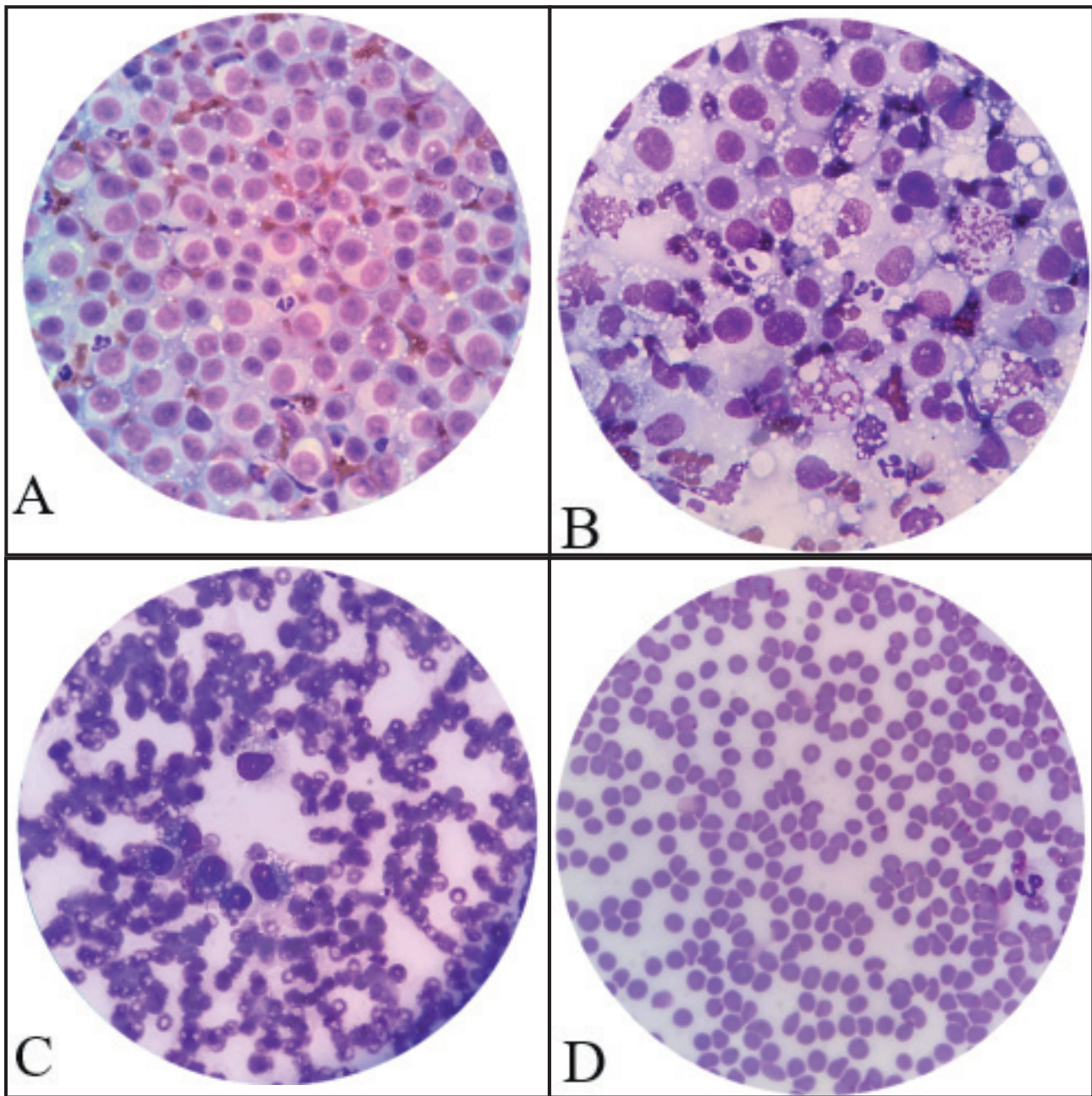


Figure 2. Cytological Diagnosis. A- Transmissible Venereal Tumour. Round cells with a circular nucleus, condensed chromatin, abundant and slightly basophilic cytoplasm with multiple dotted vacuoles and the presence of neutrophils were observed. B- Regression of neoplastic cells observed 1 week after the 1st chemotherapy session. C- Regression of neoplastic cells observed 1 week after the 4th chemotherapy session. D- Absence of neoplastic cells observed one week after the 5th chemotherapy session. [Quick panoptic method; Obj.100x].

performed before each session, in order to evaluate the occurrence of immunosuppression by chemotherapy, and cytology of the nasal region, to verify the elimination of neoplastic cells (Figure 2). After the 2nd chemotherapy session (Figure 1C) the animal presented a reaction to the treatment, showing clinical signs of emesis, decreased appetite and weight loss; was then submitted to fluid therapy [500 mL of ringer lactate⁴ and 500 mL NaCl 0.9%⁵ IV throughout the day] and application of Butaphosphane³ [Catosal[®] - 4 mL IV], Ondansetron² [Vonau Flash[®] - 0.1 mg/kg BID for 3

days] and Ciprofloxacin¹ [Cobavital[®] 1 mg /kg BID for 15 days]. A hemogram was performed in which normochromic macrocytic anaemia, lymphopenia leukopenia and hyperproteinaemia were observed. Urinalysis with highlight to discrete proteinuria, the biochemical examination for assessing renal function was repeated, which revealed altered serum urea and creatinine levels. In this way, the 3rd chemotherapy session was postponed for 13 days when an improvement was noted in the animal's clinical picture and chemotherapy was resumed (Figure 1D). After the 5th chemotherapy session, a cytological

and biochemical examination was performed and there was no more presence of neoplastic cells or alteration in renal function (Figure 2D).

DISCUSSION

The present report showed the notable importance of complementary diagnostic tests in the routine of veterinary clinics and hospitals aiming at establishing the diagnosis and therapeutic monitoring of neoplastic diseases. It was evidenced that the anamnesis and the physical state of the animal indicated a picture of nasal affection, which, through cytological examinations, confirmed the pathology as TVT. The weekly clinical follow-up, as well as laboratory analyses, were essential to ascertain the effectiveness of the treatment, the presence of adverse reactions and the institution of new medications, as the patient is geriatric, the evolution towards prostration and greater debilitation would imply greater rates of nephrotoxicity and hepatotoxicity, making the institution of medication unviable and increasing the possibility of patient death.

One study [5] consider as a risk group for TVT, young, non-castrated, non-domiciled and sexually active animals, this affection is generally noted in the external genital tract [6]. In the present report, diverging from the majority of cases described in the literature, the animal showed signs of neoplasia at 13 years of age, in a situation of decreased sexual activity, the affected area was the nasal plane, without genital involvement. It is believed that the fact that the animal has free access to the street and has the olfactory habits inherent to the canine species concerning contact with the genital region of other animals, left the animal exposed to factors which determined the transmissibility of the neoplasm. Regarding the clinical manifestations exhibited by the patient, all corroborate what is cited by other authors [12] except for epistaxis.

The normocytic normochromic anaemia demonstrated in the hemogram possibly occurred in response to the nodular and haemorrhagic characteristic of the tumour tissue [7], triggering an erythrocyte reduction. On the other hand, neutrophilic leukocytosis and hyperproteinaemia imply an indication of the occurrence of acute infection [16], which may be related to secondary bacterial causes.

The treatment instituted for TVT prioritised tumour remission and help in eliminating possible

secondary infections and other complications, corroborating literature [2]. Vincristine sulphate [at a weekly dose of 0.025 mg/kg IV for 6 weeks], was shown to be effective in the remission of the tumour in the nasal region, however, it is believed that the side effect verified, with the presentation of adverse symptomatology, alterations in the red and white blood series, as well as in renal and hepatic function, are related to the application of this medication, as it is capable of causing immunosuppression and is also related to rates of nephrotoxicity and hepatotoxicity [7], therefore, in cases involving geriatric patients with DVT, clinical monitoring and appropriate supportive therapy is indicated [1], with the use of fluid therapy, immunostimulants, appetite stimulants and antiemetics, concomitant with chemotherapy, since, they have demonstrated their efficacy in this study.

The prognosis for cases of nasal TVT is considered poor only in situations involving metastasis to the nervous system and ocular globe [2]. The existence of previous treatments for this neoplasm, as well as incomplete regression, can lead to resistance to chemotherapy, resulting in reserved prognoses [3]. Geriatric patients may present immunosuppression more easily [8], however, the therapeutic conduct and laboratory monitoring adopted influence in good prognosis as to neoplastic regression, as verified in this work.

Understanding the behaviour of nasal TVT can clarify important points about the populations that are susceptible to this disease, as well as provide meaningful data on its prevalence, diagnosis and treatment. Understanding how the tumour is transmitted is necessary to understand the more aggressive forms of the tumour, in patients of different age groups, since it has a high clinical incidence [4]. Therefore, it is important that when observing nasal nodules, a differential diagnosis for TVT should be made, especially in regions endemic to the disease.

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Declaration of interest. The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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