

Treatment of canine transmissible venereal tumors in a male dog through surgery and chemotherapy[†]

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ABSTRACT: Canine transmissible venereal tumors (CTVT) is a malignant tumor that affects the genital organs. It is highly contagious in dogs and is a significant global concern. This case report presents an effective and efficient treatment for CTVT in male dogs, offering valuable insights into veterinary care in small-animal oncology and surgery. A 2-year-old neutered male dog weighing 18,65 kg was examined by the owners, who reported the presence of a lump on the penis. The lump was initially small but increased in size over 2 weeks. In addition, the owners noted the presence of blood in the penis. Based on the anamnesis, clinical examination, and laboratory examination, the dog was diagnosed with CTVT with a good prognosis. Treatment included surgical excision of the tumors, followed by chemotherapy with vincristine sulfate. The postoperative wound completely healed within 7 days, and chemotherapy was administered 3 times with an interval of 7 days between each treatment. The dog was completely cured 1 month after chemotherapy without recurrence.

Keywords:

canine transmissible venereal tumor, chemotherapy, dog, surgery

■ INTRODUCTION

Canine transmissible venereal tumor (CTVT), or venereal sarcoma, is a highly contagious malignant tumor in dogs and has become a significant global concern (Takariyanti *et al.* 2021). CTVT has been documented almost annually in Bali and affects both male and female dogs, most of which are stray (Dharma *et al.* 2010; Supartika & Juliantara 2015). Clinical signs include the presence of cauliflower-like masses in the genital areas or on mucosal surfaces, accompanied by serosanguinous discharge (Ganguly *et al.* 2016). In male dogs, CTVT is most frequently observed in the posterior aspect of the penis, extending from the corpus to the glans. This can lead to complications, such as phimosis and paraphimosis (Papazoglou & Kazakos 2002). Surgical approaches are typically employed as therapeutic interventions for small masses and localized CTVT. However, the recurrence rate remains high (50-68%) (Rogers *et al.* 1998). To achieve optimal outcomes, a combination of surgical and chemotherapy modalities is recommended (Simarmata *et al.* 2022). This case study aimed to delineate an effective and efficient treatment strategy for CTVT in dogs, emphasizing the need for caution and safer and more affordable treatment.

■ CASE

Signalment and Anamnesis: A 2-year-old neutered male mixed-breed dog, weighing 18.65 kg, presented with a lump on the posterior part of the penis that was initially small but subsequently increased in size over 2 weeks, accompanied by

bleeding from the penis. The dog was rescued at approximately 8 months of age and had an unknown mating history. The dog roams freely within the house, with eight other dogs, and is occasionally allowed outside. Another dog had a history of a TVT. **Clinical examination:** The vital signs were within the normal range. A palpable mass was present in the posterior aspect of the penis, and serosanguinous discharge was observed from the penis (Figure 1). **Laboratory examinations:** Seven days prior to surgery, a complete blood count (CBC) test was conducted to assess hematological status. The results indicated the presence of lymphocytosis and thrombocytopenia (Table S1), which prompted the administration of therapeutic medications. A repeat CBC was performed on the day before surgery. However, the results did not show any notable improvements (Table S1). Cytological analysis revealed the presence of TVT cells and neutrophils (Figure 1). Histopathological examination confirmed the diagnosis of CTVT (Figure S1). **Treatment:** The surgical procedure was performed with atropine sulfate (V-Tropin® 0.3%) 0.06 mg/kg BW SC as a premedication, ketamine (Ket-A-100®) 10 mg/kg BW combined with xylazine (Xyla®) 1 mg/kg BW IV as anesthesia. Excision of the well-demarcated tumor masses was performed. In contrast, others that had adhered to the organ tissue were left to avoid massive tissue damage. The incision was closed with a lockstitch suture and a simple

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continuous suture, followed by subcuticular sutures using PGA 3/0. Subsequently, the dog was administered a topical antibiotic (Bioplacenton®) and covered with gauze for 7 days, with wound cleaning performed SID. The dog was administered cefotaxime (PT. Meprofram) 20 mg/kg BW IM and tolfenamic acid (Tolfedine®) 4 mg/kg BW IM. The medication continued with cefixime tablet (12.5 mg/kg BW, PO BID) for 7 days and dexamethasone tablet (0.01-0.16 mg/kg BW, PO SID) for 3 days. Chemotherapy was initiated in 7 days post-surgery after histopathologic test results were obtained. Chemotherapy was performed with Vincristine sulfate (PT. Sanbe Farma) 0.025 mg/kg BW IV at intervals of 7 days for a total of three treatments. Before the chemotherapy agent, Dexamethasone (Dexatozoon®) 0.5 mg/kg BW IV was administered as an anti-anaphylactic agent (Plumb 2008; Simarmata *et al.* 2022).

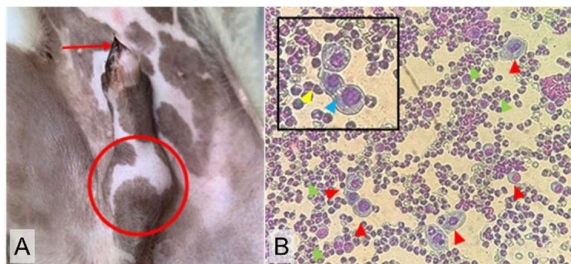


Figure 1 Clinical and laboratory examination results. (A) Tumor mass in the posterior part of the penis (circle) and serosanguinous discharge (arrow). (B) mitotic cell (yellow arrow), TVT cells (red arrows) characterized by cytoplasm has 3-4 vacuoles (blue arrow), neutrophils (green arrows) (Diff Quick, 1000X).

■ RESULTS AND DISCUSSION

Based on the anamnesis and the location of the tumor, the primary factor for the dog affected by CTVT in this case was mating with stray dogs with CTVT. Transmission occurs through licking, sniffing, scratching, and biting of the genital organs (auto-implantation) or licking of the genital organs of affected dogs (hetero-implantation) (Rodrigues *et al.* 2001).

The surgical procedure was still performed because the capillary bleeding test indicated that the patient's condition was within the normal range. The PLT value indicated that the dog had mild-to-moderate thrombocytopenia. A bleeding test was performed to evaluate platelet function. If the bleeding test result is normal, primary hemostatic defects are unlikely to occur (Smith *et al.* 2005). The surgical incision was fully healed by the 7th day post-operatively. Bleeding still occurred from the penis until the 5th day because the peripheral blood vessels cut during surgery were not ligated and allowed to close gradually. Non-ligation was performed because bleeding was managed with topical epinephrine. Chemotherapy was performed with Vincristine Sulfate due to its high efficacy rate (90%), relative affordability, and mild toxicity (Woods 2020). Vincristine Sulfate is a chemical compound that has anti-cancer properties and work by inhibiting mitosis (stopping cell division) causing cell death (Simarmata *et al.* 2022). The dog was completely cured 1 month after chemotherapy, without recurrence based on clinical examinations.

Based on Athar *et al.* (2001), CTVT treatment that begins with surgery only requires to 2-3 times chemotherapy, healing time will be faster, and no recurrence will occur. In contrast, chemotherapy must be done 5-6 times, if performed without surgery, to completely clear the tumors.

■ CONCLUSION

The combination of surgical and chemotherapeutic agents has been demonstrated to have a high success rate in curing CTVT when tumors are small and localized in one location. This combination is more effective, efficient, and affordable than treatment without surgery.

■ ASSOCIATED CONTENT

Supporting Information

†The hematology, blood biochemistry and histopathological examination were submitted in PDF form as supporting information.

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