

# SUCCESSFUL MANAGEMENT OF TRANSMISSIBLE VENEREAL TUMOR IN DOGS WITH CHEMOTHERAPEUTIC AGENT

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A group of dogs (n=6) of both sexes were suspected for TVT. Three male dogs aged in between 7 to 12 years and three female dogs 5 to 8 years respectively had reported to Veterinary Clinical Complex, Nagpur with the complaint of prepuce bleeding in males and vaginal bleeding in females since two weeks. On genital exam, it revealed to be a tumor mass. Impression smears were collected from tumours during the growth phase, before chemotherapy and after regression which were diagnosed by cytology. Microscopic picture revealed round to slightly polyhedral cells (TVT cel). The affected dogs were treated with Inj. Vincristine sulphate @ 0.025mg/kg body weight, slow IV along with fluids at weekly interval for five weeks to induce tumour regression. In all the dogs irrespective of sex tumour regressed after the fifth week treatment.

**Keywords:** Transmissible venereal tumour, Vaginal bleeding, Vincristine sulphate.

Transmissible venereal tumor (TVT) is a contagious neoplasm affecting canines which is primarily transmitted through the transfer of malignant cells during coitus. It is a benign reticuloendothelial tumor of the dog that mainly affects the external genitalia and occasionally the internal genitalia. It occurs rarely at the ocular region (Milo and Snead, 2014) and or oral cavity (Raghunath *et al.*, 2015). It is characterized by extra-genital manifestations which may develop from the implantation of neoplastic cells on exposed mucosae. It shows an unusual karyotype which have arisen from a rearrangement of the normal chromosomes, resulting in the maintenance of a stable tumor genome across the population of TVT cells (Bongiovanni *et al.*, 2016).

It is transmitted from animal to animal through sexual contacts but passed on as the dog bites, sniffs or licks, scratching or smell a carrier animal (Ganguly *et al.*, 2016). In males, it affects the caudal aspect of the penis

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and the prepuce area, resulting in phimosis or paraphimosis. Ulcerated lesions in male external organs with hemorrhagic discharges resulted in urethritis, cystitis and prostatitis (Dar *et al.*, 2017). In female dogs, the lesions are common at the vestibulovaginal junction with the tumor surrounding the urethral orifice and protruding from the vulva (Milo and Snead, 2014). They grow slowly over years and finally changing to malignant and metastatic.

Macroscopically, TVT lesions are often friable, hemorrhagic with nodular, granulomatous or necrotic cauliflower like masses, red to flesh colored. Dogs experience pain and exhibit serosanguineous discharge from the external genitalia. Definitive diagnosis is done by cytological and histopathological findings. It is self-limiting disease. Antineoplastic chemotherapy, cryosurgery, radiotherapy, immunotherapy and surgical resection are choices of treatment (Dar *et al.*, 2017). Antineoplastic

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treatment involve a single chemotherapeutic agent as Vincristine or combination of drugs is the best option. However, metastasis, chemotherapeutic resistance, and death are still reported in CTVT cases in endemic areas, especially in immunosuppressed dogs. With this view in mind present study was envisaged.

### Case history and Observations

A group of six dogs three male and three females were suspected for transmissible venereal tumor. Three male dogs aged 7, 9 and 12 years and three female dogs of 5, 7 and 8 years respectively had reported to Veterinary Clinical Complex, Nagpur with the complaint of preputial hemorrhagic discharge in males and vaginal bleeding in females observed two weeks back. On genital exam, it revealed to be a tumor mass.

There were no visible changes in general body condition, except preputial bleeding discharge along with sniffing and licking at genital area. All the dogs had shown behavior and appetite normal with routine consumption of water. The temperature from all the dogs were within

normal reference range. General examination of genitalia revealed phimosis condition of penis and further complete exteriorization of the penis revealed multiple friable, cauliflower like, multilobular growth > 4cm in diameter at the tip of penis. In all three female dogs, the lesions were at the vestibulovaginal junction with the tumor surrounding the urethral orifice and protruding from the vulva.

### Diagnosis:

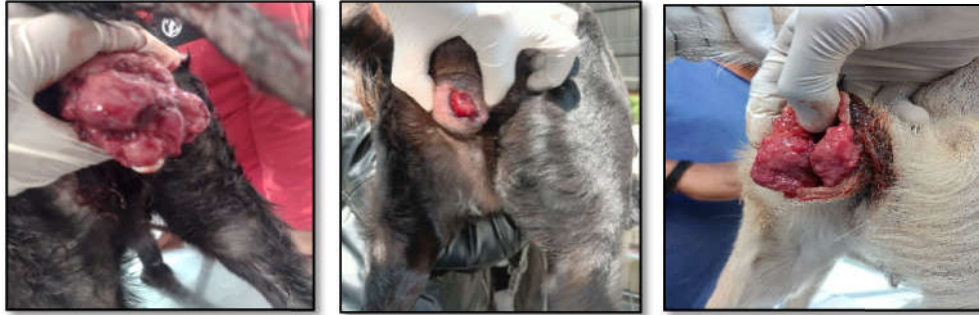
Clinical symptoms and cytological investigations were carried out for diagnosis. Thorough clinical examination revealed a masses at the wall of caudal vagina (Photo-1&3). Cytological examinations of the tumorous growth were done by taking impression smears. Large number of erythrocytes, neutrophils, lymphocytes and round to oval shaped TVT cells with mitotic figures and pyknotic nuclei were observed with microscopic findings (Photo-4). These conditions were diagnosed as Transmissible Venereal Tumor (TVT) on the basis of clinical observations and smear examination.



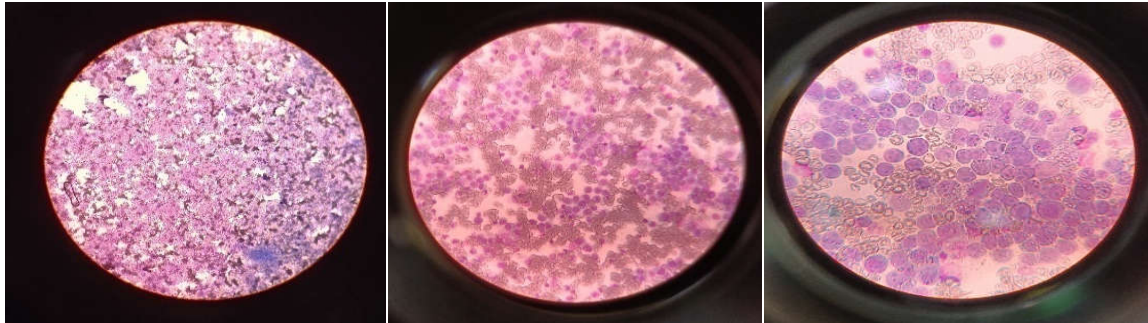
Before Treatment (Photo-1)



After Treatment (Photo-2)



**Gross appearance of tumor lesion on vaginal examination in female dogs (Photo-3)**



10x objective lens

45x objective lens

100x objective lens

**Before Treatment -Microscopic examination of impression smear taken from the tumour mass (Photo-4).**

### **Treatment, Results and Discussion**

Vincristine sulphate (Vincristine, Biochem) was administered weekly @ 0.025 mg/kg body weight slow IV in normal saline for five weeks along with the supplementation of Liv 52 (liver supplement) and Dexorange (Haematinic) 5ml each BID respectively and the tumour mass started regressing gradually after the first dose itself and completely regressed after 5th dose in each case. Chlorpheniramine maleate was administered @ 0.5 mg/kg body weight IM every time with Inj. Vincristine to avoid any allergic reaction. In the present cases, the diagnosis was based on clinical signs and confirmed by cytological examination. The owners were advised to observe the dogs for any untoward side effect.

Chemotherapy is better used than surgery in the patients who are in deprived condition because it does not put the dog at risk of the effects of general anesthesia. Vincristine sulfate is generally the most effective chemotherapy for the treatment of

TVT in dogs. This is the first choice of treatment for TVT as also suggested by Filho *et al.*, 2020. Vincristine sulfate is used because of its high effectiveness (estimated to remove tumors with a 90% success rate), relatively affordable price, and mild toxicity as also mentioned by Woods, 2020. Cytological evaluation is essential for diagnosis the tumors of genital tract. So, the other round cell tumors, such as histiocytoma, mastocytoma, lymphoma, plasmacytoma and melanoma were excluded. The pet owners and breeders should carefully examine all males and females before mating and should also prevent contact of valued dogs with stray dogs for controlling the disease transmission. In cases where the histopathological examination reveals tumor cells, the animals should not be used for breeding and be monitored for any tumour recurrences.

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