

ATYPICAL CUTANEOUS TRANSMISSIBLE VENEREAL TUMOUR IN DOG – A CASE REPORT

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SUMMARY

An atypical form of cutaneous transmissible venereal tumour (TVT) was diagnosed in a Pitbull dog. The dog had fluctuating and ulcerating nodular masses throughout the body surface. Cytological examination of the impression smears from non-ulcerated and ulcerated nodular growths from different locations revealed round cells with oval to round nuclei and distinct vacuoles present at the periphery of cells. Based on these findings, it was diagnosed as TVT. Chemotherapy with Vincristine @ 0.025mg/kg b.wt. IV once a week for 5 weeks along with supportive treatment yielded favorable results and complete recovery of the dog.

Keywords: Cutaneous TVT, Dogs, Vincristine Sulphate

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Canine transmissible venereal tumour (TVT) also known as Sticker's sarcoma is a neoplasm with unusual properties and unconventional clinical development, naturally occurring exclusively in dogs primarily transmitted by sexual contact and possibly by direct contact through sniffing, licking of the genitalia, and bite wounds during fights (Boscós and Ververidis, 2004). It is mostly located at the genitalia but rarely can be found on other parts of the body (such as nasal or oral cavities, skin, rectum, rarely in lips, oral mucosa, and peritoneum or other organs) (Goldschmidt, 2002). It is characterized by irregular, multi-nodular to cauliflower-like in shape or growth in prepuce, vagina and penis (Jangir *et al.*, 2019). Transmission generally occurs through inoculation of neoplastic cells into damaged mucosa or skin (Boscós and Ververidis, 2004).

Among chemotherapeutic agents, vincristine is the main treatment option for TVT along with surgical, radiological and immunotherapy. Radiotherapy was reported to be highly effective but requires specialized equipment and trained personnel. More recently, the emphasis has been given on the use of antineoplastic chemotherapeutic agents for treating TVT (Das *et al.*, 2020).

A 4-years-old intact male Pit-bull was presented to multispecialty veterinary hospital of GADVASU with the history of multiple dermal masses with (few of them were ulcerated), and rapidly growing for the last one and half month throughout the body surface (Fig.1). The masses were firm and freely movable. Appetite and other activities like defecation and urination were normal. There was history of mating about three months back. Earlier, the dog had been treated with antibiotics and anti-inflammatory drugs but the condition had not resolved.

Hemato-biochemical parameters like complete blood count, and biochemical parameters like alanine aminotransferase, aspartate transaminase, alkaline phosphatase, creatinine were evaluated and did not reveal any significant change except increased alkaline phosphatase levels. Hemato-biochemical parameters were re-evaluated after the 5th dose of chemotherapy and there was no marked alteration in all these parameters. Fine needle aspirates from various nodules from different anatomical locations of the dog were collected, smears were prepared on glass slides, routinely processed, stained with hematoxylin and eosin (HE) for microscopic examination as described by Thangathurai *et al.*, (2008). The impression smears were cellular and had similar features as of TVT tumour. Tumour cells were present in sheets with occasional individual cells. The cells were round with distinct cytoplasmic borders. The cytoplasm was slightly blue or clear, finely granular, and contained clear, distinct vacuoles arranged along the periphery of the cells. Oval to round nuclei were usually centrally located and had a prominent nucleolus and finely stippled chromatin (Fig. 2). Radiography of chest and abdomen was done to rule out metastases but there was no indication of metastases in internal organs.

After confirming the case of TVT, it was treated with injection of vincristine sulphate @ 0.025mg/kg b.wt. at weekly interval and Inj. Ranitidine @ 0.2mg/kg b. wt. along with hepatoprotectant- syrup hepamust 5ml PO twice daily for 5 weeks. After five cycles of treatment, nodules were regressed completely after 5 weeks resulting in recovery (Fig. 3).

Canine TVT is a rapidly growing tumour at first and then remain constant for a time, with eventual spontaneous regression after several months (Gonzalez *et al.*, 2000). In

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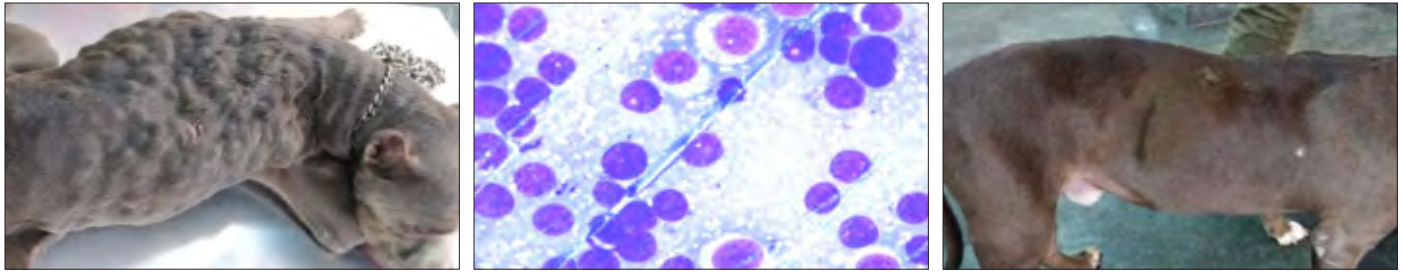


Fig. 1 to 3. (1) Dog showing multiple ulcerative and non ulcerative cutaneous masses before treatment; (2) Stained impression smear showing neoplastic cells with oval to round nuclei, distinct cytoplasmic borders and presence of characteristic cytoplasmic vacuolations. (H & E stain, 100x); (3) Complete regression of cutaneous masses in TVT in the dog after 5 weeks of treatment with vincristine sulphate.

this dog, the tumor appeared to be in progressive growth stage, as suggested by minimal involvement of tumor-infiltrating lymphocytes (Kabuusu *et al.*, 2010). This dog had a history of mating around 3 months back, so it is assumed to be transmitted at the time of coitus. Hematological results of this case were in consonance with Das and Das (2000) and Turkar *et al.* (2018), who reported normal hemato-biochemical parameters in canine TVT. Cytology of fine needle aspirates obtained from nodules was the method of choice for diagnosis of TVT, as this technique is simple, cheap, minimally invasive and painless than biopsy (Birhan and Chanie, 2015). These tumours present characteristic round cells with distinct cytoplasmic borders, oval or round and centrally-located nuclei with delicate chromatin and large nucleoli, lightly basophilic cytoplasm containing finely granular with fine vacuoles (Santos *et al.*, 2005). Similar cytological features were obtained in this case in our study. Das *et al.*, (2020) and various others reported that vincristine sulphate @ 0.025 mg/kg b.wt. IV at weekly intervals is the most effective, safe and convenient chemotherapeutic agent, giving a better survival time in canine TVT patients. This can be used alone or in combination with surgical excision. Despite of the atypical clinical presentation of TVT in this case, response to chemotherapy with vincristine was excellent, which led to complete regression of neoplasm within a month.

Cytology is minimally invasive, painless and best choice for diagnosis of skin TVT. Vincristine sulphate should be first choice chemotherapeutic agent for TVT in dogs.

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