

# Cutaneous Transmissible Venereal Tumour in a 3-Month Old Pup: A Rare Case

Surbhi Gupta<sup>1\*</sup>, Deepika Kataria<sup>1</sup>, Sushma Chhabra<sup>1</sup>, Gurpreet Singh Preet<sup>2</sup>, Kuldip Gupta<sup>3</sup>

*Ind J Vet Sci and Biotech* (2022): 10.48165/ijvsbt.18.5.29

Canine sticker cell tumor or Canine transmissible venereal tumour (TVT) is a contagious naturally occurring, round cell tumour of dogs with a global prevalence of 0.5-10% (Strakova and Murchison, 2014). The disease is spread directly between dogs by copulation-induced vaginal abrasions, and is most frequently linked to irresponsible breeding practices or a lack of adequate veterinary services (Das and Das, 2000). Additionally biting, clawing, sniffing and licking has also been linked to direct transmission (Marcos *et al.*, 2006). It is mostly found on genitalia but can be found on other parts and cutaneous also (Goldschmidt, 2002) and is characterized by irregular, multi nodular to cauliflower-like ulcerated growth in genital or extra-genital areas (Jangir *et al.*, 2019). In pediatric canines with immunosuppression, tumour implantation may be extensive and exhibit aggressive clinical behavior (such as rapid neoplastic development and metastasis) (Marcos *et al.*, 2006; Stockmann *et al.*, 2011). The disease has a very good prognosis with the right chemotherapy and supportive treatment (Preet *et al.*, 2021). The case reported here is noticeable because it showed an unusual clinical presentation of multifocal cutaneous lesions of TVT with traditional diagnostic findings in a 3 month old pediatric puppy. In order to achieve the best possible patient outcomes, it is crucial to be aware of uncommon clinical presentations, be aware of your diagnostic alternatives, and be familiar with the typical diagnostic findings of TVT. Early diagnosis in this case was made possible by cytology, which was later confirmed by histology.

## CASE HISTORY AND CLINICAL OBSERVATIONS

A 3-month-old male Labrador retriever puppy was presented to multi-specialty veterinary hospital, GADVASU, Ludhiana (India) with the chief complaint of multiple round, non-pruritic, dry crusted and progressive ulcerated lesions on the skin since 10-15 days that were not responding to routine antibiotics (Cephalixen, cefotaximetc) and other medication (Ivermectin, etc). The pup was raised by the breeder since the time of birth. Physical examination revealed alopectic, erythmic, annular, and crusted lesions that were spread ventrally and varied in size. The rest of the physical examination went without incident. The rectal temperature was normal. The patient had a body condition score of 7/9 and was bright, alert, and receptive. Dermatological examination revealed multiple non-painful,

<sup>1</sup>Department of Veterinary Medicine, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab-141004, India

<sup>2</sup>Department of Teaching Veterinary Clinical Complex, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab-141004, India

<sup>3</sup>Department of Veterinary Pathology, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana Punjab-141004, India

**Corresponding Author:** Surbhi Gupta, Department of Veterinary Medicine, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab-141004, India, e-mail: surrometra05@gmail.com

**How to cite this article:** Gupta, S., Kataria, D., Chhabra, S., Preet, G. S., & Gupta, K. (2022). Cutaneous Transmissible Venereal Tumour in a 3-Month Old Pup: A Rare Case. *Ind J Vet Sci and Biotech.* 18(5), 137-139.

**Source of support:** None

**Conflict of interest:** None

**Submitted:** 14/07/2022 **Accepted:** 29/10/2022 **Published:** 10/11/2022

dermal/subcutaneous, partially movable, firm nodules (3-4 cm) in the ventral abdominal region (Fig. 1).

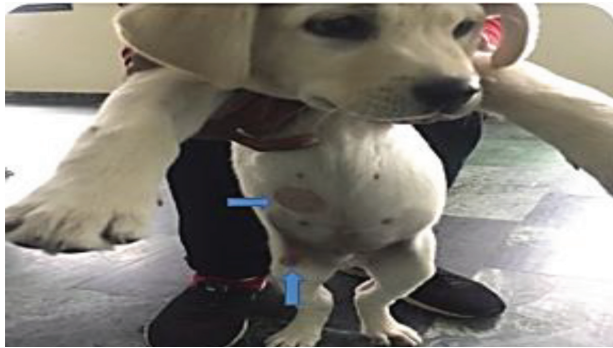
Fine needle aspiration of the annular lesions was performed and stained with Leishman Stain, which showed a dense population of monomorphic cells with a round to ovoid central nucleus, a moderate amount of finely granular, lightly basophilic to clear cytoplasm and frequent intracytoplasmic clear vacuoles (Fig. 2, 3). Microorganisms were not observed on cytological examination. Round cell tumours were among main list of differentials based on cytology, with TVT and histiocytic diseases being the primary prominent variables. Less likely differentials included mast cell tumour, plasmacytoma, lymphoma, or amelanotic melanoma. A 4 mm punch biopsy sample was collected from small raised nodular growth region for histopathological examination which showed prominent widespread proliferations of big round cells, often organised in packets of different sizes with delicate collagenous stroma. Large round nuclear chromatin frequently vesicular to slightly coarse with frequent macronucleoli, and a high mitotic index suggesting TVT was the main histological differential feature (Fig. 4). The absence of metastasis was ruled out using advanced imaging techniques such as abdominal ultrasonography and radiography of the chest and abdomen. The results led to the diagnosis of multifocal, cutaneous TVT.

## TREATMENT AND DISCUSSION

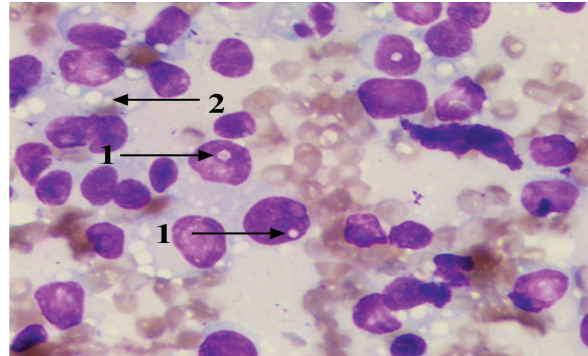
Treatment of the patient was started with 0.5 mg/kg oral prednisone every 24 h for 5 days followed by tapering to discontinuation. Following histopathological results confirming TVT, the patient was treated with 4 weekly treatments of intravenous vincristine sulphate @ 0.025 mg/kg b.wt. along with supportive treatment as discussed by Preet *et al.* (2021). On prednisone monotherapy, the patient showed a slight clinical improvement and no further progression of the ulcerative, crusty lesions. Resolution of clinical lesions appeared as a measure of vincristine response.

Significant clinical improvement was seen after the first dose of vincristine, which was continued for 4 weeks. There was no recurrence of clinical symptoms till treatment (Fig. 5).

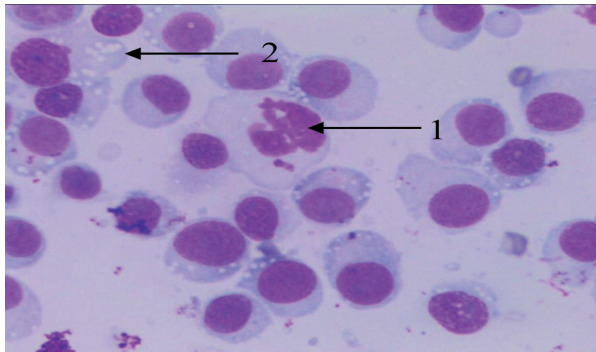
TVT is a distinct, communicable tumour of dogs. Behaviors including copulation, biting, scratching, licking, and grooming can cause epithelial abrasions and direct transmission despite the fact that TVT cannot pass through intact epithelium (Marcos *et al.*, 2006). Canines that are in close proximity to one another or stray and wild dogs that engage in unrestricted sexual activity are at higher risk. Other instances like interaction between dams and pups may also serve to spread disease (Marcos *et al.*, 2006). The present



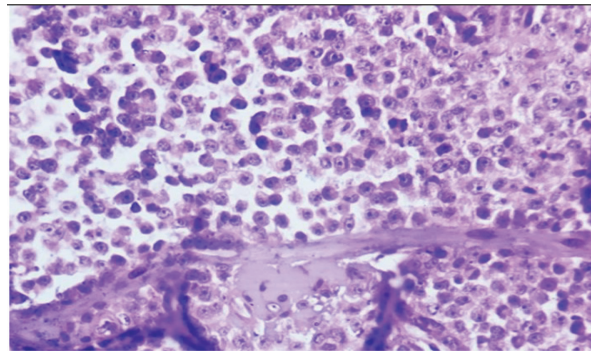
**Fig. 1:** Arrow showing multiple round, crusted and ulcerated elevated small growths



**Fig. 2:** FNAC (1000x): Arrows 1 showing prominent nucleoli and arrow 2 showing punctate vacuole in cytoplasm



**Fig. 3:** FNAC (1000x): Arrow 1 showing mitotic figure and Arrow 2 showing vacuoles in cytoplasm



**Fig. 4:** H & E staining (1000x): Loose sheets and uniform round cells and prominent nucleoli along with thin fibrovascular stroma



**Fig. 5:** Photographs of the lesion: (a) on day 0, (b) 1 month, (c) 3 month, (d) 4 month post-chemotherapy depicting progressive healing of the lesions

case was different from most others in the literature, since the dog was a specified breed, Labrador, a three-month-old puppy (pre-puberty) and had no contact with the outside environment. The appearance and distribution of lesions in this patient were unusual having hard, dermal and subcutaneous nodules that had a normal clinical look to the overlying epidermis and loss of hair coat over the lesions, as opposed to pedunculated, friable masses. There was no clinical proof of immunodeficiency or maternal disease in this case. Due to social behavior and cohabitation between the carrier progenitor and the offspring, extragenital TVT in adolescent dogs may move to alternate anatomical sites (Marcos *et al.*, 2006).

Fine needle aspiration and cytological analysis of the lesions are extensively utilized (Nak *et al.*, 2005; Ulcar *et al.*, 2012) and being a quick, inexpensive, minimally invasive, and painless procedure, are thought to be crucial for quick diagnosis of TVT (Lapa *et al.*, 2012). Histiocytic tumours with a round cell origin are among the differentials and additionally, as cytological analysis in TVT, there are a lot of mitotic figures, chromatin clumping, and extremely unique visible intra-cytoplasmic vacuoles (Cangul, 2001). Examining needle aspirate from this patient strongly suggested TVT or cutaneous histiocytosis, allowing for a quick presumptive diagnosis, and it was confirmed by further histological analysis. Chemotherapy with Vincristine @ 0.025 mg/kg intravenously weekly for 3-8 weeks has been shown to be the most effective treatment for TVT (Preet *et al.*, 2021) with up to 100% cure rates, minimal recurrence rates, and substantial margins of safety. Similar to earlier reports, this patient responded favorably to vincristine therapy, exhibiting just minor nausea and diarrhea as side effects. After four vincristine dosages, the clinical lesions were fully resolved, and six months later there was no sign of a recurrence.

In conclusion, this case showed successful diagnosis and treatment of a rare extra-genital TVT in a small puppy. The prognosis for TVT with vincristine therapy is often very good. In order to achieve favorable long-term results, it is essential to recognize the disease presentations and the distinctive diagnostic findings.

## ACKNOWLEDGEMENT

Authors are thankful to Director and Head of TVCC, GADVASU Ludhiana for providing the financial support to conduct clinical study at Multi-specialty Veterinary Hospital in the University.

## REFERENCES

- Cangul, I.T. (2001). Improved classification, diagnosis and prognosis of canine round cell tumours. *Veterinary Sciences Tomorrow* 4, 1-19.
- Das, U., & Das, A.K. (2000). Review of canine transmissible venereal sarcoma. *Veterinary Research Communication*, 24(8), 545-556.
- Goldschmidt, M.H. (2002). Tumors of the skin and soft tissues. In: *Tumors in Domestic Animals*. 4<sup>th</sup> edn., Meuten, D.J. (Edts.), Iowa State University Press, Ames, Iowa, USA, pp. 45-118.
- Jangir, B.L., Deepika, L., Sandeep, S., & Jakhar, K.K. (2019). Pathomorphological and immunohistochemical studies on transmissible venereal tumours in dogs. *Haryana Veterinarian*, 58(1), 82-85.
- Lapa, F.A.S., Andrade, S.F., Gervazoni, E.R., Kaneko, V.M., Sanches, O.C., & Filho, L.R.A.G. (2012). Histopathological and cytological analysis of transmissible venereal tumor in dogs after two treatment protocols. *Colloquium Agrariae*, 8(1), 36-45.
- Marcos, R., Santos, M., Marrinhas, C., & Rocha, E. (2006). Cutaneous transmissible venereal tumor without genital involvement in a prepuberal female dog. *Veterinary Clinical Pathology*, 35(1), 106-109.
- Nak, D., Nak, Y., Cangul, I.T., & Tuna, B. (2005). A clinico-pathological study on the effect of vincristine on transmissible venereal tumour in dogs. *Journal of Veterinary Medicine, Series A*, 52(7), 366-370.
- Preet, G.S., Sidhu, S., Dhaliwal, K.S., Singh, J., & Kaur, J. (2021). Atypical cutaneous transmissible venereal tumour in dog - A case report. *Haryana Veterinarian*, 60(2), 317-318.
- Stockmann, D., Ferrari, H.F., Andrade, A.L., Lopes, R.A., Cardoso, T.C., & Luvizotto, M.C.R. (2011). Canine transmissible venereal tumors: aspects related to programmed cell death. *Brazilian Journal of Veterinary Pathology*, 4(1), 67-75.
- Strakova, A., & Murchison, E.P. (2014). The changing global distribution and prevalence of canine transmissible venereal tumour. *BMC Veterinary Research*, 10(1), 168.
- Ulcar, I., Celeska, I.I., Ilievska, K., Atanaskova, E., Nikolovski, G., & Trojačanec, P. (2012). Cytological diagnosis of canine transmissible venereal tumor - case report. *Macedonian Veterinary Review*, 35(2), 91-96.