



ISSN (E): 2277- 7695

ISSN (P): 2349-8242

NAAS Rating: 5.03

TPI 2020; 9(6): 128-130

© 2020 TPI

www.thepharmajournal.com

Received: 19-04-2020

Accepted: 21-05-2020

Dr. Pramod Kumar

Assistant Professor, Department of Veterinary Gynecology and Obstetrics, College of Veterinary and Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Dr. Manisha Mehra

Assistant Professor, Department of Veterinary Pathology, College of Veterinary and Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Dr. Satish

Department of Veterinary Gynecology and Obstetrics, College of Veterinary and Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Dr. Shivendra Kumar Bhalothia

Department of Veterinary Gynecology and Obstetrics, College of Veterinary and Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Dr. Tapendra Kumar

Department of Veterinary Gynecology and Obstetrics, College of Veterinary and Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Dr. Bhanu Prakash

Department of Veterinary Gynecology and Obstetrics, College of Veterinary and Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Dr. Sasi G

Department of Veterinary Gynecology and Obstetrics, College of Veterinary and Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Dr. Tipu Sultan

Department of Veterinary Gynecology and Obstetrics, College of Veterinary and Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Dr. Rajendra Mehra

Department of Veterinary Gynecology and Obstetrics, College of Veterinary and Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Corresponding Author:

Dr. Pramod Kumar

Assistant Professor, Department of Veterinary Gynecology and Obstetrics, College of Veterinary and Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Clinical diagnosis and therapeutic management of transmissible venereal tumor in a German Shepherd dog: A case report

Pramod Kumar, Manisha Mehra, Satish, Shivendra Kumar Bhalothia, Tapendra Kumar, Bhanu Prakash, Sasi G, Tipu Sultan and Rajendra Mehra

Abstract

This report describes a case of transmissible venereal tumor in a German shepherd dog and treatment with vincristine sulfate resulted in complete resolution of the TVT.

Keywords: German shepherd dog, transmissible venereal tumor, vincristine sulphate

Introduction

Canine Transmissible Venereal Tumor (CTVT) also known as infectious sarcoma, venereal granuloma, transmissible lymphosarcoma or sticker's sarcoma, is a benign reticuloendothelial (histiocytic) tumor of the dog that mainly affects the external genitalia and occasionally the internal genitalia (Bloom *et al.*, 1951; Bloom *et al.*, 1981; Goldschmidt and Hendrick, 2002) [1,2,3] and rarely at the ocular region (Milo and Snead, 2014) [4]; nasal passage (Gurel *et al.*, 2002) [5] and or oral cavity (Raghunath *et al.*, 2015) [6]. It is located on the base of the penis or prepuce in males, and on the vagina or labia in females. Infection and transmission occurs mainly through intercourse, being more common in young sexually mature animals. Due to exfoliation on affected region from the sick animal, an atypical neoplastic cell infection occurs on healthy individuals. These may grow slowly over years and become invasive, eventually changing to malignant and metastatic. Upon genitalia examination, males generally have tumors cranially located on the glans, and preputial bulb and mucosa (Johnson, 1994; Nak *et al.*, 2005) [7, 8] with a consequent phimosis. Ulcerated lesions in male external organs taking place with hemorrhagic discharges usually mystified with urethritis, cystitis and prostatitis (Dar *et al.*, 2017) [9]. The incidence of metastasis is quite low and occurs in 5% or less of the cases (Sharma *et al.*, 2012) [10]. The methods used to treat TVT are cryosurgery, radiotherapy, surgical resection and antineoplastic chemotherapy that are the protocol of choice in routine clinical treatment (Purohit, 2009; Dar *et al.*, 2017) [11, 9]. Antineoplastic treatment may combine two or more chemotherapeutic agents (for example, vincristine and cyclophosphamide combined with methotrexate), or it can involve a single agent as vincristine (Purohit, 2009; Dar *et al.*, 2017) [11, 9]. The present paper reports transmissible venereal tumour in a German shepherd dog and treatment with vincristine sulfate resulted in complete resolution of the TVT.

Case history and Observations

Four years old male German shepherd dog with history of bleeding from preputial area after urination since past 15 days was referred to clinics of department of Veterinary Gynaecology and Obstetrics, College of Veterinary and Animal Science, RAJUVAS, Bikaner. There were no visible changes in general body condition, except of preputial bleeding discharge along with sniffing and leaking in the genital area. The dog has normal behavior and normal appetite with routine consumption of water and diuresis. Clinical parameter of dog was normal and recorded as temperature was 102.2 °C, pulse was 78/minute, respiration 18/minute. The preputial orifice was smeared with blood. Physical examination of genitalia revealed, phimosis condition of penis and further careful examination of the penis through the prepuce and complete exteriorization of the penis revealed multiple friable, cauliflower like, multilobular growth greater than 4cm in diameter were observed at tip of penis (Fig.1 and Fig. 2).

Diagnosis was made by cytological examination of localized tissue by Fine needle aspirate cytology (FNAC) as non-aspiration technique. Cytological examination revealed uniform round cells containing light colored cytoplasm with multiple vacuoles and large nucleus and a prominent, central located nucleolus and infiltration of inflammatory cells neutrophils indicated that the mass was infected and ulcerated (Fig.3). These findings were consistent with the diagnosis of TVT.

Treatment and Discussion

Vincristine sulphate (Vincristine, Biochem) was administered weekly @ 0.025 mg/kg, B.wt. slow intravenously in normal saline for three weeks along with the supplementation of Liv 52 (liver supplement) and Dexorange (Haematonic) 5ml each BID and the mass regressed gradually after the first dose itself and completely regressed after 3rd dose.

In the present report, the diagnosis was based on clinical signs and was confirmed by cytological examination, carried out through fine needle aspiration. Several treatments including surgery, radiotherapy, immunotherapy, biotherapy and chemotherapy have been reported for TVT (Pigatto *et al.*, 2011 [12]. Chemotherapy has been shown to be the most effective and practical therapy, with vincristine sulphate (IV once weekly) being the most frequently used drug and for complete remission usually required 2 to 8 injections (Das *et al.*, 1989; Bal Krishnan, 1997; Das and Das, 2000; Mello *et al.*, 2005; Nak *et al.*, 2005; Khan *et al.*, 2009; Scarpelli *et al.*, 2010; Varughese *et al.*, 2012; Saibaba *et al.*, 2015; Sreekumar *et al.*, 2015; Shiju *et al.*, 2017) [13, 14, 15, 16, 8, 17, 18, 19, 20, 21, 22]. Mechanism of action of vincristine sulphate is inhibiting mitosis and bonded with tubulin by preventing the formation of mitotic spindles.

TVT cells that lack cytoplasmic vacuoles may be easily confused with other round cell tumors. The morphological appearance and location of the tumor however could help in the diagnosis. Mitotic figures in different stages of mitosis were prominent. This indicates the proliferating nature of the tumor cells. Immunological studies have clearly demonstrated that TVT is antigenic in the dog and an immune response against the tumor plays a major role in determining the course of the disease (Mizuno *et al.*, 1994) [23]. Metastasis of TVT is uncommon, only occurring in puppies and immunocompromised dogs (Purohit, 2009) [11]. Cytological evaluation is essential for diagnosis the tumors of genital tract in dogs. So, the other round cell tumors, such as histiocytoma, mastocytoma, lymphoma, plasmacytoma and melanoma were excluded (Igor *et al.*, 2012) [24]. Cytostatic agents, such as vincristine, can cause myelosuppression and gastrointestinal effects resulting in leucopenia (Sousa *et al.*, 2000; Silva *et al.*, 2007; Gaspar *et al.*, 2009) [25, 26 and 27] and when white blood cell count is below 4,000 mm³ further administration should be delayed 3 to 4 days and the dose of vincristine can be reduced to 25% of the initial dose (Dar *et al.*, 2017) [9].

Conclusions

TVT is the most prevalent neoplasia of the external genitalia of the dog with complaint of hemorrhagic discharge by owners. Diagnosis is based on clinical and cytological findings. TVT can be treated by weekly IV administration of vincristine drug.

Acknowledgement

Authors are thankful to the head, department of VGO and

head, department of Veterinary Pathology, CVAS, Bikaner for extending necessary facilities and highly acknowledge the effort of student during the management of the case.

Conflict of interest

Authors have no conflict of interest with any one about this manuscript.



Fig 1: Multilobular cauliflower like out growth on tip of penis of dog



Fig 2: Measurement of diameter of penile tumors in dog

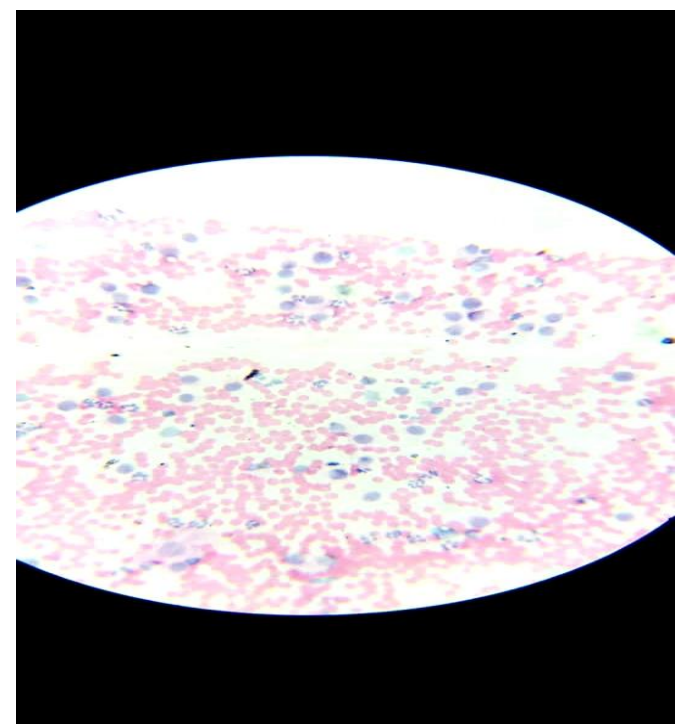


Fig 3: Microphotograph of TVT (Hematoxylin and Eosine stain, 1000X)

References

1. Bloom F, Paff G, Noback CR. The transmissible venereal tumor of the dog; studies indicating that the tumor cells are mature end cells of reticulo-endothelial origin. *Am. J Pathol.* 1951; 27(1):119-139.
2. Brown NO, MacEwen E, Calvert CA. Transmissible venereal tumor in the dog. *California Vet.* 1981; 3:6-10.
3. Goldschmidt MH, Hendrick MJ. Tumours of the skin and soft tissues. In: *Tumours in domestic animals.* (Meuton, D. J., Ed.), 4th ed., Iowa State Press, Iowa; 2002, 45-118.
4. Milo J, Snead E. A case of ocular canine transmissible venereal tumor. *The Canadian Vet. J.* 2014; 55(1):1245.
5. Gurel A, Kuscu B, Gulanber EG, Arun SS. Transmissible venereal tumors detected in the extragenital organs of dogs. *Israel J Vet. Med.* 2002; 57(2):23-26.
6. Raghunath M, Chowdhary SR, Vidya Sagar P, Ravi Kumar P. Genital and extra genital TVT in a bitch- a case report. *Sch. J Agric. Vet. Sci.* 2015; 2(1b):61-62.
7. Johnson CA. Infecções genitais e tumor venereo transmissível. In: Nelson RW, Couto CG, eds. *Fundamentos de Medicina Interna de Pequenos Animais.* Rio de Janeiro: Guanabara Koogan. 1994, 525.
8. Nak D, Nak Y, Cangul I, Tuna B. A clinico-pathological study on the effect of vincristine on transmissible venereal tumour in dogs. *J Vet. Med. Series A.* 2005; 52:366-370.
9. Dar RR, Islam ST, Rouf A, Wani JM, Dogra P, Sheikh AA *et al.* Cytological diagnosis and treatment of transmissible venereal tumor in dog- A case study. *Int. J Curr. Microbiol. App. Sci.* 2017; 6(10):1365-1369.
10. Sharma AK, Kumar H, Kumar S, Kiran D. *Indian Vet. J.* 2012; 89(11):78-79.
11. Purohit GN. Canine transmissible venereal tumor: a review. *Internet J Vet. Med.* 2009; 6(1):1-7.
12. Pigatto JA, Hunning PS, Bercht BS, Albuquerque L. Transmissible venereal tumor in the palpebral conjunctiva of a dog: Case report. *Semina: Agri. Sci.* 2011; 32(3):1139-1144.
13. Das AK, Das U, Das DK, Sengupta J, Das BB, Bose PK. Metastasis of canine transmissible venereal sarcoma in a dog. *Ind. J Vet. Surg.* 1989; 10:74-75.
14. Bal Krishnan K. Transmissible venereal tumor in bitches-chemotherapy with vincristine. *Indian J Vet. Surgery.* 1997; 18(2):107.
15. Das U, Das AK. Review of canine transmissible venereal sarcoma. *Vet. Res. Commun.* 2000; 24:545-556.
16. Mello Martins MI, Ferreira de Souza F, Gobello C. The canine transmissible venereal tumor: etiology, pathology, diagnosis and treatment. In: Concannon PW, England G, Verstegen III J, Linde-Forsberg C, eds. *Recent advances in small animal reproduction.* Ithaca, New York: International veterinary information service, 2005; A1233.0405. Available from: http://www.biologia.studies.uj.edu.pl/~joachimia/_
17. Khan LA, Khante GS, Raut BM, Bodkhe, AM, Chavan MS, Pagrut, NS, Bobde SP. Incidence of Venereal Granuloma and its Medicinal treatment in stray Dogs of Nagpur City. *Vet. World.* 2009; 2(1):13-14.
18. Scarpelli KC, Valladao ML, Metzke K. Predictive factors for the regression of canine transmissible venereal tumor during vincristine therapy. *Vet J.* 2010; 183:362-363.
19. Varughese E, Singla V, Ratnakaran U, Gandotra V. Successful management of metastatic transmissible venereal tumour to skin of mammary region. *Reprod. Domest. Anim.* 2012; 47:366-369.
20. Saibaba M, Lakshmi ND, Phaneendra MSSV. Successful Chemotherapeutic Management of TVT in Dogs – Report of 24 cases. *Int. J Innovative Sci. Engineering Techno.* 2015; 2(8):370-374.
21. Sreekumar KS, Narendran PV, Ajidhan VB. Case Study of Canine Transmissible Venereal Tumor. *EC Vet. Sci.* 2015; 2(2):109-117.
22. Shiju Simon M, Ramprabhu R, Pazhanivel N. Transmissible venereal tumour in a castrated dog – A case report. *Indian Vet. J.* 2017; 94(4):82-84.
23. Mizuno S, Fujinaga T, Hagio M. Role of lymphocytes in spontaneous regression of experimentally transplanted canine transmissible venereal sarcoma. *J Vet. Med. Sci.* 1994; 56:15-20.
24. Igor U, Irena C, Ksenija I, Elena A, Goran N, Plamen T. Cytological diagnostic of canine transmissible venereal tumor-case report. *Macedonian Vet. Review.* 2012; 35(2):91-96.
25. Sousa J, Saito V, Nardi AB, Rodaski S, Guerios SD, Bacila, M. *Caracteristicase incidencia* do tumor venereo transmissível (TVT) em caes e eficiencia da quimioterapia e outros tratamentos. *Archives of Vet. Sci.* 2000; 5:41-48.
26. Silva MCV, Barbosa RR, Santos RC, Chagas RSN, Costa WP. *Avaliação epidemiologica, diagnostica e terapeutica* do tumor venereo transmissível (TVT) na população canina atendida no hospital veterinario da UFERSA. *Acta Vet. Brasilica.* 2007; 1(1):28-32.
27. Gaspar LFJ, Amaral AS, Bassani-Silva S, Rocha NS. Imunorreatividade a glicoproteína-P no tumor venereo transmissível canino. *Veterinaria em Foco.* 2009; 6(2):138-146.