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Clinical Article

PRIMARY INTRANASAL TRANSMISSIBLE VENEREAL TUMOR (TVT) IN A MALE LABRADOR DOG AND ITS THERAPEUTIC MANAGEMENT

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SUMMARY

A two year old, male Labrador retriever dog of 30 kg body weight was presented with history of nasal discharge, dysponea, sneezing and profuse recurrent bleeding from right nostril since last two weeks. Bleeding was in the form of fresh and uncoagulated blood. Physical examination revealed a soft painful swelling palpable at nasal area on right side of face. Haematological examination revealed mild anaemia and relative neutrophilia along with adequate platelets count. Blood smear examination was negative for haemoprotozoan parasite. Biochemical parameters pertaining to liver and kidney were within normal range. Radiographic evaluation of head lateral and ventro-dorsal revealed no bony lesions. Cytological examination of nasal swab sample revealed neoplastic population of large round cells with intracytoplasmic vacuolation typical of Transmissible Venereal Tumor. The dog was treated with intravenous administration of Vincristine sulphate in four weekly dosages leading to complete resolution of clinical signs and eventful recovery.

Keywords: Dog, Epistaxis, Nasal cavity, Transmissible venereal tumor

Transmissible venereal tumor (TVT), a contagious sexually transmitted round cell neoplasm of dogs, has continued to be a major problem around the world (Turkar *et al.*, 2018). It mostly occurs in sexually mature dogs with no breed or sex predilection and observed in dogs that are in close contact with one another that exhibit unrestrained sexual activity (Singh and Sood, 2016). Metastasis of TVT is uncommon as reported in <5% of cases, only occurs in puppies and immuno-suppressed dogs (Nak *et al.*, 2005). The main localization is vulva or vaginal vestibule of females and penis in males. Less commonly, TVT may be transmitted to nasal/oral cavities, skin and rectum by sniffing or licking and rarely occurs to lips, oral mucosa and peritoneum and other organ like musculature (Mukaratirwa and Gruys, 2003) and mammary gland (Nak *et al.*, 2005). Signs of nasal canine TVT include facial swelling, enlargement of superficial lymph nodes, oro-nasal fistula, epistaxis and other nasal discharge (Papazoglou *et al.*, 2001; Sankar *et al.*, 2016). The present clinical report describes primary intranasal TVT in a male Labrador retriever dog and its treatment with Vincristine sulphate.

A two year old, intact male Labrador retriever dog weighing around 30 kg was presented to Veterinary Clinical Complex, Khalsa College of Veterinary and Animal Sciences, Amritsar with history of nasal discharge, dysponea and profuse recurrent bleeding from right nostril since last two weeks. The dog often sneezed. During excitement or handling of dog, bleeding in the form of fresh and uncoagulated blood came out from the right nare. The animal was alert, active and was licking the blood. According to the owner, the dog was usually placed in the garden for playing with other dogs in evening hours. Deworming and vaccination of animal had been undertaken properly. The dog had been previously treated with antibiotics and anti-histaminics without any response. Physical examination revealed normal physiological parameters. A soft painful swelling was palpable at nasal area on right side of face. Haematological parameters were estimated by fully Automatic Laser Based Haematology Analyser and Differential leukocyte counts (DLC) were determined on the Geimsa stained blood by counting 100 cells. Haematological findings revealed mild anemia and relative neutrophilia (Hb- 9.0 g/dl, TEC- 5.1 $\times 10^6$/µl, TLC- 9.2 $\times 10^3$/µl, N-78%, L-18%, E- 4% along with adequate platelets count (PLT-288$\times 10^5$/µl). Blood smear was negative for haemoprotozoan. Serum biochemistry revealed normal levels of alanine aminotransferase (ALT), aspartate aminotransferase (AST), blood urea nitrogen (BUN) and serum creatinine were 48 U/L, 42 U/L, 22.4 mg/dl and 0.8 mg/dl, respectively. Radiographic evaluation of skull (lateral and ventro-dorsal view) revealed no bony lesions or any encapsulated mass (Fig. 1). Cytological examination (Geimsa staining) of nasal swab sample revealed neoplastic population of large round cells with intracytoplasmic vacuolation typical of TVT (Fig. 2). Based on cytological findings, extra genital nasal TVT was diagnosed. Prepuce and penis of dog could not reveal any growth.

Initially, the treatment was focused towards checking the bleeding. Inj. Tranexamic acid @10 mg/kg body weight I/V was given. The bleeding did not slow down even after fifteen minutes so the cotton balls soaked in 0.1% adrenaline solution were inserted into the nostril, which slowed down the bleeding and stopped after ten minutes.

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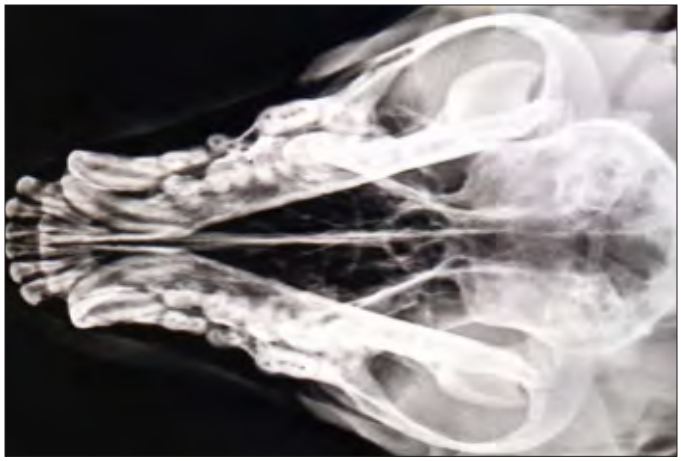

Fig. 1. X-ray of skull (ventro-dorsal view) showing no encapsulated mass

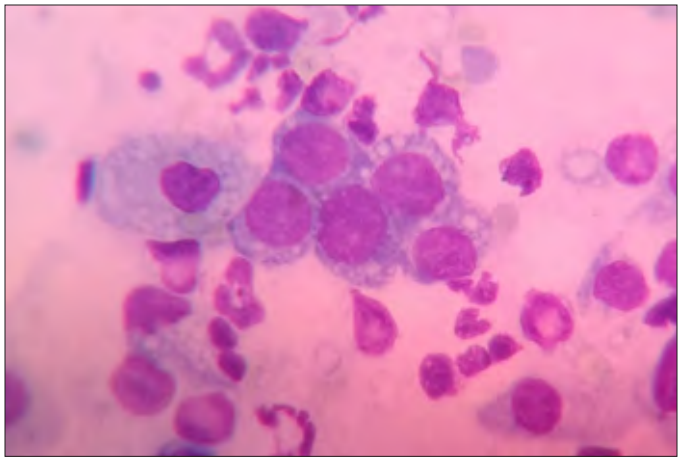

Fig. 2. Nasal TVT showing neoplastic cells with punctuate cytoplasm (100X)

After that weekly intravenous injection of Vincristine sulphate @ 0.025 mg/kg body weight were administered for four weeks alongwith supportive therapy which included inj. ranitidine @ 0.2 mg/kg body weight IM BID and syrup liver tonic @10 ml PO BID. After first two doses, relevant clinical signs (epistaxis and sneezing) started to subside. After a month, owner informed that the dog has completely recovered without any recurrence and thriving well.

Genitalia of female and male dogs have been documented as the most affected sites of TVT with higher incidence in sexually mature dogs (Das and Das, 2000). It is most commonly spread during mating but can also spread on sniffing or other physical contact with abraded skin resulting into extra genital TVT (Rezaei *et al.*, 2016). In present report, although the dog was house kept but it often roams outdoor, therefore might came in contact with stray dogs, which may explain the mode of tumor transmission.

Canine TVT may also develop at extra genital sites e.g. in nasal cavity, eye orbit, spleen, liver, skin, ribs, sub-cutaneous, sub-mandibular, cervical and inguinal lymph nodes (Chikweto *et al.*, 2013). In absence of primary genital tumor, extra-genital TVT is considered either primary due to dog's social behaviour or metastatic if primary lesion had completely regressed before the dog was examined (Das and Das, 2000; Komnenou *et al.*, 2015). In present case, since no genital or extra-genital lesions were found following physical examination, diagnostic imaging and laboratory tests, and nasal lesions were considered to be primary. Papazoglou *et al.* (2001) also reported primary TVT from nasal cavity in six dogs. Dogs of any age, sex and breed may be affected, whether they are sexually active or not (Das and Das, 2000; Komnenou *et al.*, 2015).

Radiographic evaluation of head in lateral and ventro -dorsal plane showed no bony lesions. Though radiological imaging is not specific for final diagnosis of canine TVT, it is extremely important to know the extent of lesions and bone invasion (Joshi *et al.*, 2016). The diagnosis was based on cytological examination of nasal discharge which clearly differentiates from other nasal tumors (Moulton, 1978). The most prominent cytological feature of TVTs is the presence of distinct, clear, cytoplasmic vacuoles (Duncan *et al.*, 1979). Similar cytological features were obtained in our study. Clinical signs reported in this case are similar with those described by Papazoglou *et al.* (2001) with epistaxis and nasal discharge as the first signs. Epistaxis during excitement or handling was related to fragile nature of tumor. Various treatment options such as chemotherapy, immunotherapy, radiation therapy, thermal therapy and surgical excision are available for management of canine TVT (Rogers *et al.*, 1998; Das and Das, 2000; Kangasniemi *et al.*, 2004; Nak *et al.*, 2005; Sankar *et al.*, 2016), but chemotherapy is the most effective method of treating TVTs. Vincristine sulphate, a well-tolerated and cost effective drug, is the most frequently used drug and complete remission of TVT usually occurs after 2-8 weekly injections (Nak *et al.*, 2005; Singh *et al.*, 2019). In our report, the dog recovered completely without relapse with 4 weekly intravenous injections of Vincristine sulphate.

To conclude, in dogs with chronic symptoms related to upper respiratory tract such as sneezing, nasal discharge, dysponea and recurrent epistaxis, one must consider the possibility of intranasal TVT, even in absence of apparent tumor proliferation. Diagnosis could be made by cytological examination and chemotherapy with Vincristine sulphate exhibit complete remission of the disease.

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