Indian Vet. J., July 2024, 101 (7): 5 - 8

Intranasal Transmissible Venereal Tumour with Regional Lymph Node Metastases in a Labrador Dog

S.Mahalakshmi, R.Madheswaran*, M.Sasikala and D.Sumathi

Department of Veterinary Pathology, Veterinary College and Research Institute, Namakkal - 637 002, TANUVAS, Tamil Nadu, India.

(Received: February 2024 37/24 Accepted: June 2024)

Abstract

A three-year old male Labrador dog was diagnosed with transmissible venereal tumour in the intranasal region. The dog was brought for the treatment with a history of bleeding from the right side nose. Clinical examination of the dog revealed severe bleeding associated with respiratory distress and enlarged sub-mandibular lymph node. Haemato-biochemical values of the dog showed no alterations for any parameters. Rhinoscopic examination of nasal cavity revealed reddish-white coloured multinodular growth. The cytology of the nasal discharge and fine needle aspirates of submandibular lymph node revealed a few round neoplastic cells of plasmacytoid subtype with punctate vacuoles. Immunocytochemical analysis of lymph node aspirates revealed positive expression for vimentin and CD3. Histopathological evaluation of the nasal growth revealed neoplastic cells with neutrophils and lymphocytes supported by stromal tissues.

Key words : TVT, cytology, immunocytochemistry, histopathology.

Transmissible venereal tumour (TVT) is a benign tumour of the dogs that primarily affects the external genitalia with sporadic involvement in the internal genitalia (Martins *et al.,* 2005). The tumour generally spreads to the skin, rectum, nasal or oral cavities through social behaviours like sniffing, licking or scratching. This tumour was rarely reported in other organs such as kidneys, lung, liver, spleen, tonsils, muscles and lymph nodes (Gupta and Sood, 2012). Metastases of the TVT to regional lymph nodes are extremely uncommon and it was reported in less than 5% of the cases (Dhillon *et al.,* 2021). Hence, a rare occurrence of intranasal transmissible venereal tumour with regional lymph node metastases in a male Labrador dog is reported.

Materials and Methods

A three-year old male Labrador dog with a history of right side nose bleeding and swelling in the submandibular region was brought for the treatment to Veterinary Clinical Complex, Namakkal. Clinical examination of the dog exhibited epistaxis with respiratory distress, presence of growth in the hard palate (Fig. 1) and enlargement of the submandibular lymph node (Fig. 2). Rhinoscopic examination of the nasal cavity revealed grayish-white coloured multinodular growths (Fig. 3).

Cytology smears were prepared from the nasal discharge, as well as fine needle aspirates (FNA) of the submandibular lymph node. The smears were fixed in methanol and stained with Wright-Giemsa stain. Few smearswere subjected to immunocytochemical (ICC) staining fixed in cold acetone. They were incubated with primary antibodies like vimentin (EP21α) and CD3(PP160) and then HRP conjugated secondary antibody, diaminobenzidine and substrate buffer. The slides were counterstained with Mayer's haematoxylin, washed, dehydrated and mounted with DPX.The FNAs from submandibular lymph node was also collected for histopathology in 10% neutral buffered formalin. They

[1]*Corresponding author* : Email: rmadheswaran2003@gmail.com
Part of M.V.Sc., thesis of the first author

were processed, sectioned at 3-5µ thickness and stained with Harris's haematoxylin and eosin (H&E).

Results and Discussion

The haemato-biochemical values of the dog revealed no alterations for any parameters. The cytological examination of nasal discharge revealed a few round neoplastic cells mixed with erythrocytes. The tumour cells had basophilic cytoplasm and spherical shaped nuclei with one or two nucleoli (Fig. 4). The lymph node aspirates revealed mixed population of a few neoplastic cells with punctate vacuoles and blood cells (Fig. 5). The ICC analysis of lymph node aspirates revealed moderate cytoplasmic expressions for vimentin (Fig. 6) and CD3 (Fig. 7) in the neoplastic cells. The histopathological evaluation of FNAs revealed a predominant population of stromal epithelial cells with few neoplastic cells, lymphocytes and neutrophils (Fig. 8). The neoplastic cells contained prominent nuclei with multiple nucleoli. Based on these findings, the case was diagnosed as nasal form of TVT and treated with vincristineat weekly interval for four weeks.

Ther are occurrence of intranasal form of TVT in the Labrador dog with lymph node metastasis noticed in the present study is in agreement with the previous reports (Gupta and Sood, *loc. cit.;* Martins *et al. loc. cit.*). The dog exhibited sneezing, epistaxis and respiratory distress of this study is in accordance with reports of previous workers who observed these signs inadenocarcinoma, sarcomas, thrombocytopenia and fungal rhinitis (Parker *et al.,* 2021). The neoplastic cells implantation in the intranasal

Fig. 1. The dog exhibiting ulceration with tumor growthin the hard palate region (circle)

Fig. 2. Thedog showing enlarged submandibular lymph node in the right side (circle)

Fig. 3. The rhinoscopic evaluation of the dog nasal cavity showing grayish-white multinodular growth (circle)

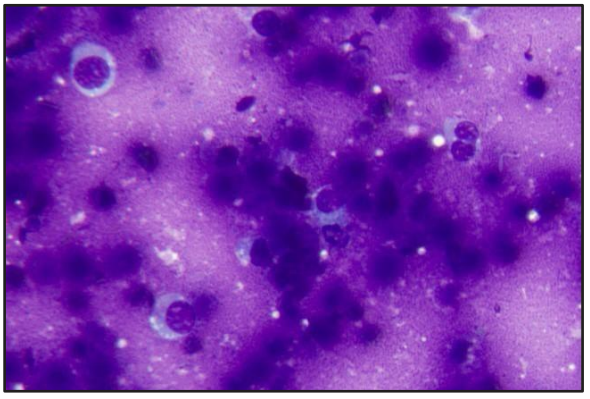

Fig. 4. Cytology of the nasal discharge showing few round neoplastic cells with punctate vacuoles (arrows) and erythrocytes.**Wright-Giemsa x400**

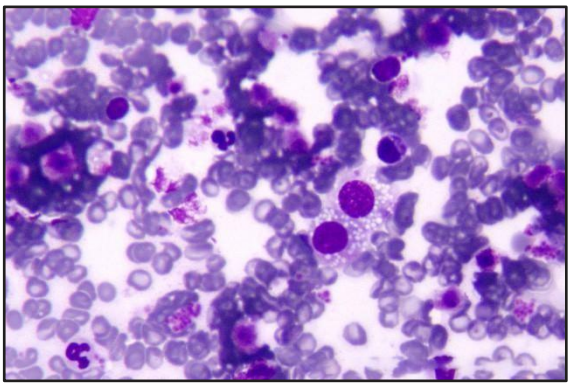

Fig. 5. FNAC of submandibular lymph node showing few round neoplastic cells with punctuate vacuoles (circle) and erythrocytes.**Wright-Giemsa x400**

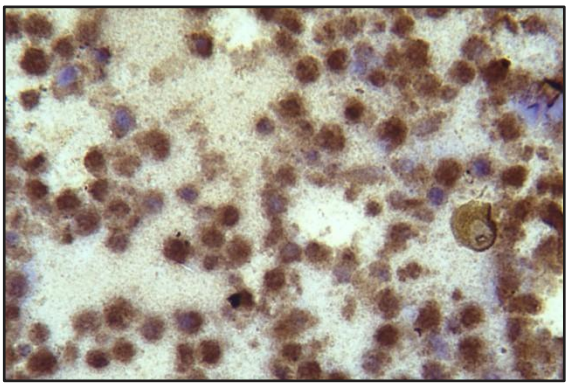

Fig. 6. The aspiratesof submandibular lymph node showing marked expression to vimentin. **ICC Vimentin x400**

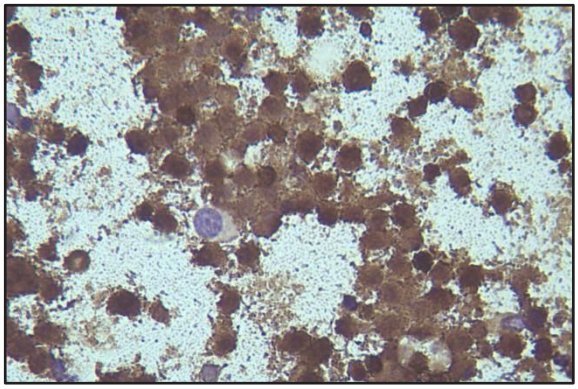

Fig. 7. Theaspirates of submandibular lymph node showing moderate expression to CD3. **ICC CD3 x400**

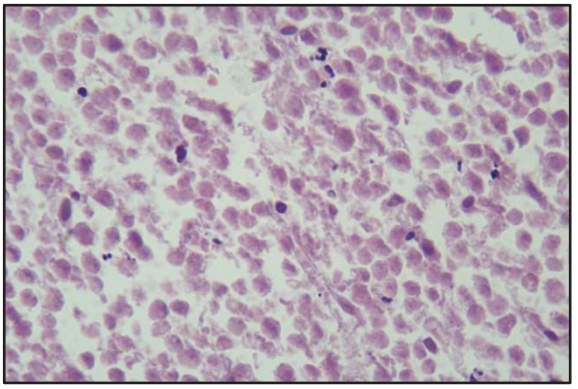

Fig. 8. The nasal growth showing few neoplastic cells with neutrophils (circle) and lymphocytes (arrows).**H&E x400**

region of the dog observed in this study might be due to licking or sniffing behaviour (Gupta and Sood, *loc. cit.;* Ojeda *et al.,* 2016). The intranasal form of TVT with obvious lesions in the nasal cavity may lead to the facial deformities stated in the previous reports is lacking in the present study (Ojeda *et al. loc. cit.*).

The cytological features observed in this study are in accordance with the findings of earlier workers who observed lymphocytic, plasmacytic and mixed cell types (Ojeda *et al. loc. cit.*). The ICC expression of vimentin and CD3 in the current study indicated the origin of neoplastic cells from lymphoid tissues (Gupta and Sood, *loc. cit.*). The histological pattern of plasma cytoid sub type observed in the present study is contradicted to the previous workers who observed these cell types in genital form of TVT (Setthawongsin *et al.,* 2018). TVT is the only round cell tumour that can be treated with chemotherapy was also observed in the present study.

Summary

The early diagnosis of TVT was done by rhinoscopic technique and complemented with cytology, immunocytochemistry and histopathology for confirmatory diagnosis. The dog was treated with chemotherapy successfully.

Acknowledgement

The authors are thankful to the Tamil Nadu Veterinary and Animal Sciences University, Chennai for providing all the necessary facilities to carry out this work.

References

Dhillon,K.S., Sharma,S. and Arora,M. (2021). Primary intranasal transmissible venereal tumour (TVT) in a male Labrador dog and its therapeutic management. *HaryanaVet.,***60 :** 117-119.

Gupta,K. and Sood,N.K. (2012).Pathological and immunohistochemical studies on rare cases of primary extragenital transmissible venereal tumors in the mammary gland. *Vet. Med. (Praha).,***57(4) :** 198-206.

Martins,M.M., De Souza,F., Ferreira,F. and Gobello,C. (2005). The canine transmissible venereal tumour: etiology, pathology, diagnosis and treatment. *Recent Adv. Small Anim.Reprod.,***25(7) :** 161-167.

Ojeda,J., Mieres,M., Soto,F., Arnes,V., Paredes,E. and Navarrete,M. (2018). Computer tomographic imaging in four dogs with primary nasal canine transmissible venereal tumour and differing cellular phenotype.*J. Vet. Intern.Med.,***32(3) :** 1172-1177.

Parker,T., Jaffey, J.A., Hostnik, E.T., White, M., Chamberlin,T., da Cunha,A. and Wycislo,K.L.(2021). Rhinoscopic appearance and clinical features of a nasal transmissible venereal tumour in a dog. *Top. Comp. Anim. Med.,* **42(3) :**1-18.

Setthawongsin,C., Tangkawattana,S., Rungsipipat,A. and Techangamsuwan,S. (2018). Computerized cytomorphometric and cytomorphological analysis of canine transmissible venereal tumours. *J. Comp.Pathol.,***163 :**18-22.

Indian Vet. J., July 2024, 101 (7): 8 - 13

Phenotypes of Antimicrobial Resistance in Bovine Mastitis Pathogens and Analysis of Risk Factors Associated with Mastitis

Elamurugan Appavoo[1,2]*, Ranjithkumar, M[3], Jayanthy, C[4], Sumathra, M[1], and Samuel Masilamoni Ronald, B[1]

Department of Veterinary Microbiology, Madras Veterinary College, TANUVAS, Chennai - 600007, Tamilnadu, India

(Received: March, 2024 65/24 Accepted: June, 2024)

Abstract

In the era of antimicrobial resistance, precisely identifying the causation of bovine mastitis and their antimicrobial sensitivity assessment is of paramount importance. In the present study, analysis of risk factors associated with bovine mastitis in Chennai region revealed that incidence was high in Holstein-Friesian crossbred cattle, second lactation period and summer months. Among bacterial pathogens, associated *Staphylococcus* species were found in half of the mastitis cases. In addition, considerable variations were found in susceptibility of isolates to β-lactam, fluoroquinolones and aminoglycosides. In conclusion, continuous monitoring of AMR is need of the hour for the effective control of bovine mastitis.

Key words: Antimicrobial resistance, Bovine mastitis, Risk factors, Bacterial pathogens

Mastitis is one of the economically importance diseases of dairy cattle throughout the world. The direct and indirect losses in terms of treatment cost, loss of production, decrease in value of the animal, further complications

**Corresponding author* : Email : elamurugan.a@tanuvas.ac.in
[1]Department of Veterinary Microbiology, Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamilnadu, India- 600007.
[2]Vaccine Research Centre-Viral Vaccines, Centre for Animal Health Studies, Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamilnadu, India- 600 007.
[3]Department of Clinical Medicine, Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamilnadu, India- 600 007.
[4]Department of Clinics, Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Chennai, Tamilnadu, India- 600 007.