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Cytological study on round cell tumors in dogs: Case report

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Abstract

A 8 year old female dog was presented with a history of multiple dermal masses over the body and 9 year old male dog was presented with a history of masses near the neck and the shoulder region. Fine needle aspiration cytology was performed from both the case. Based on the cytology the samples were diagnosed as cutaneous TVT and mast cell tumor.

Keywords: Cutaneous TVT, cytology, dogs, mast cell tumor

Introduction

Skin and subcutis are the most common sites for neoplasms in dogs accounting for 67.5% of tumors (Dorn et al., 1968) ^[1]. Common round cell tumors in dogs are mast cell tumor, transmissible venereal tumor, histiocytoma, lymphoma and plasmacytoma (Fernandez et al., 2005) ^[2]. Mast cell tumor alone accounts for approximately one fourth of all skin tumors in dogs (Welle et al., 2008) ^[3]. The most common sites of mast cell tumors varied from ventral aspect of neck, lateral aspect of thigh, thoracic and abdominal regions (Madhesh et al., 2019) ^[4]. Histiocytomas are found in the head, neck and appendages and are usually benign. Plasmacytoma and multiple myelomas are common in older dogs and are typically malignant and TVTs (Transmissible Venereal Tumors) are sexually transmitted (Mathur et al., 2018) ^[5]. Apart from genitalia, transmissible venereal tumors has been reported in the skin, eyes, brain, subcutaneous tissue, lymph nodes, liver, spleen (Santos et al., 2008) ^[6]. The present study report on the occurrence of cutaneous transmissible venereal tumor and mast cell tumor in dog.

Materials and Methods

The current study was carried out in the Department of Veterinary Pathology, Institute of Veterinary Science and Animal Husbandry (IVS & AH), SOA University with 2 dogs presented to Veterinary Clinical Complex, IVS & AH with a history of 8 year old female dog showing multiple dermal masses over the body and 9 year old male dog showing a masses near the neck and the shoulder region. Fine needle aspiration cytology was performed from both the case. Thin smear was prepared and slide was fixed with methanol for 5 minutes and then stain by giemsa for 30 minutes and observed under the microscope.

Result and Discussion

In general, genital TVT is common in females and extragenital TVT is common in males due to its breeding behaviour (Ganguly et al., 2016) ^[7]. Apart from genital tract, TVT can also affect the skin, eyes, brain, subcutaneous tissue, lymph nodes, liver, spleen (Santos et al., 2008; Preet et al., 2021) ^[6, 8]. These tumors are usually spread at the time of coitus or sniffing and licking.

In the present case, 8 year old female dog was presented with a history of multiple dermal masses over the body. Fine needle aspiration cytology showed high cellularity and had similar feature of TVT tumors. The cells were large round to oval with distinct cytoplasmic borders. The cytoplasm contains distinct vacuoles arranged along the periphery of the cells (Figure 1&2). Our findings are in accordance with the earlier worker

(Santos *et al.*, 2008; Preet *et al.*, 2021) ^[6, 8] who had reported cutaneous TVT. Madesh *et al.* (2019) ^[4] also reported multiple subcutaneous nodules over the body in extragenital form of TVT which support our findings. Madesh *et al.* (2019) ^[4],

Preet *et al.* (2021) ^[8] and Simon *et al.* (2016) ^[9] reported the incidence of cutaneous TVT in male dog whereas our study showed the incidence on female dog.

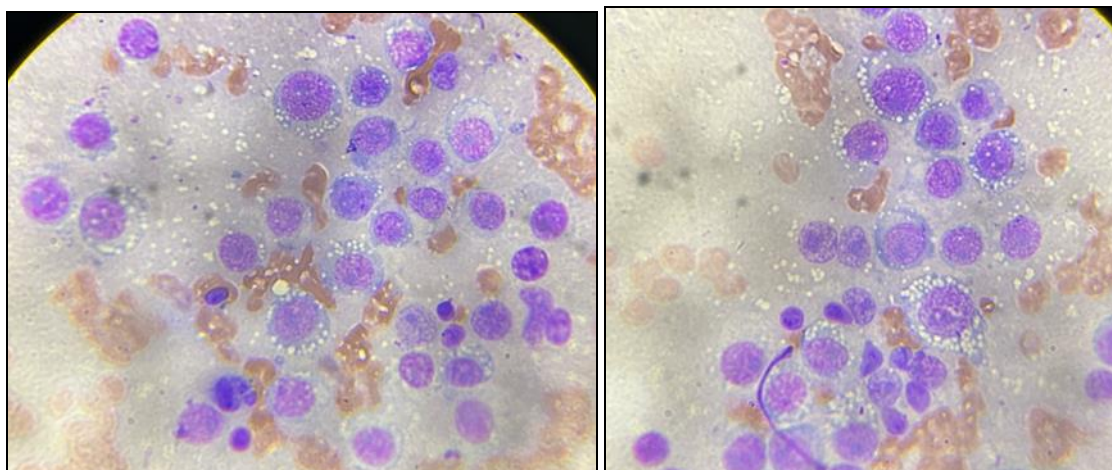


Fig 1 & 2: FNAC: Large round cells with round nucleus and multiple vacuoles in the cytoplasm

Mastocytoma is a round-cell tumor comprises of mast cells. Mast cells are a part of immune system and closely resemble basophils. The cytoplasmic granules consist of histamine. In the present case, a 9 year male dog was presented with a history of masses near the neck and shoulder region. Fine needle aspiration cytology revealed high cellularity along with pleomorphic cells, round shaped of nucleus with stained mass of cytoplasmic metachromatic granules (Figure 3 & 4).

The findings are in accordance with the earlier work of Alleman and Bain (2000) ^[10] and Girish *et al.* (2011) ^[11]. Mathur *et al.* (2018) ^[5] reported incidence was more common among age group between 6 to 10 years which support with our findings. Mathur *et al.* (2018) ^[5] also reported the most common sites of mast cell tumors varied from ventral aspect of neck, lateral aspect of thigh, thoracic and abdominal regions which support our findings.

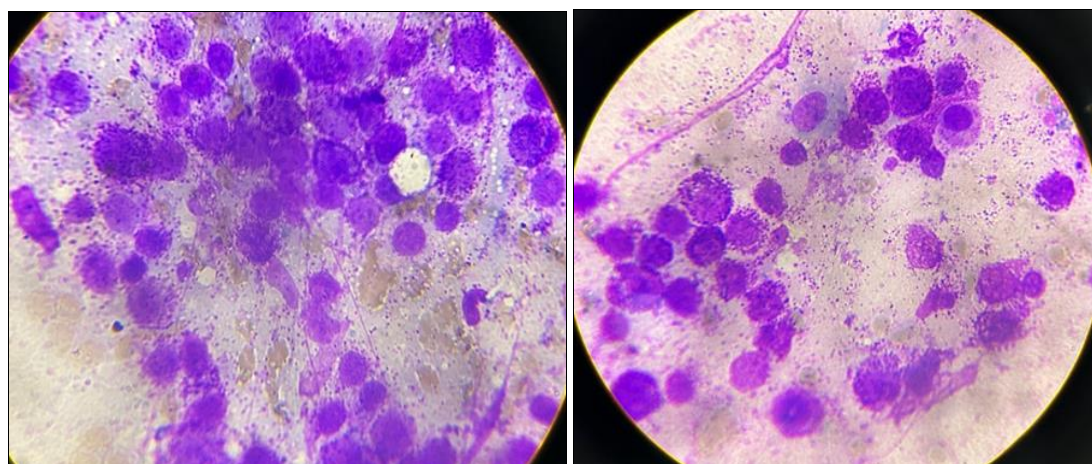


Fig 3 & 4: FNAC: Mast cell tumor showing pleomorphic cells, round shaped of nucleus with cytoplasmic granules

Conclusion

Diagnostic cytology is the science of interpretation of cells that are either exfoliated from epithelial surfaces or removed from various tissues. It helps us to identify diseases process, neoplasia, inflammation or non-specific inflammation. In the present study, based on the cytology the samples were diagnosed as cutaneous TVT and mast cell tumor.

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Conflict of Interest

Not available

Financial Support

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