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Clinical Article

CLEAR CELL TUMOR OF SALIVARY GLAND IN A DOG: A CASE REPORT

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SUMMARY

A 2-year-old mongrel male dog was presented to Veterinary Clinical Complex (VCC) with the history of swelling pertaining to a mass below the left ear from past two months. On clinical examination the mass was found on the caudal border of ramus of mandible on the left side with round shape and firm consistency. Cytological examination of aspirated contents taken from the growth revealed round- oval cells (epithelial and mesenchymal) with marked pleomorphism, double nucleoli, hyperchromasia and prominent nucleoli. The cytological observations were suggestive of neoplasm of glandular origin as the cells were present in clusters. The mass by excised surgically (excisional biopsy) and upon histopathology the tissue sections revealed the presence of cords of clear cells with distinctive borders and eosinophilic cytoplasm. Based upon the cytological and histopathological evaluation the present case was diagnosed as clear cell tumour involving salivary gland.

Keywords: Clear cell, Dog, Salivary gland, Tumour

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Salivary glands are important exocrine glands functioning in salivary secretions with amylase into the oral cavity thereby help in mastication and swallowing of the food. Most of the salivary gland tumours are benign in nature, but have the tendency of reoccurrence and metastases (Israel *et al.*, 2016). One of the studies has shown that the incidences of salivary gland neoplasia were 0.0153 and 0.0263% in dogs and cats, respectively (Cray *et al.*, 2020).

Around 80% of all the salivary gland tumours are benign, out of which 65% are pleomorphic adenomas. Pleomorphic adenomas are one of the most commonly encountered tumour affecting 55% of major salivary gland and 50% of minor salivary glands (Speight and Barrett, 2002; Valstar *et al.*, 2017). The salivary gland tumours can include adenocarcinomas, adenomas, mixed tumours (Head *et al.*, 2002), malignant myoepitheliomas and rarely carcinosarcomas (Perez-martinez *et al.*, 2000). Clear cell neoplasms are locally invasive tumours and are benign in nature and the chances of reoccurrence are very rare. In the present case report the neoplastic condition in the mandibular area was diagnosed by using conventional cytological and histopathological study.

The present case report summarises a case of 2-year-old mongrel male dog presented to the Veterinary clinical complex (VCC), DGCN COVAS, CSKHPKV, Palampur, Himachal Pradesh. with the history of swelling below the left ear on the caudal border of ramus of mandible on the left side since past two months. The swelling was round in appearance with hard consistency. The swelling was painful to touch on clinical examination. Fine needle aspiration cytology (FNAC) was done and sample was submitted for cytological analysis to the Department of Veterinary Pathology DGCN COVAS, Palampur. After proper fixation of aspirated sample with 100% methanol the staining was done with Giemsa stain.

On the basis of cytological examination, it was advised to excise to neoplastic mass and later to be submitted for histopathological examination. Using the surgical intervention, the tumorous cell mass was excised and was submitted for histopathological examination to the Department of Veterinary Pathology DGCN COVAS, Palampur (Fig. 1). The representative tissue mass was fixed in 10% neutral buffered formalin (NBF). The preserved tissue section was processed and stained with Haematoxylin and Eosin (H&E) stain as per the standard protocol (Luna, 1968). The microscopic lesions were evaluated and micro-photographed for the final confirmation.

Evaluation of Giemsa-stained cytosmear revealed the presence of epithelial cell population in bunches with moderate to severe degree of pleomorphism, prominent nucleoli, anisokaryosis and bi-nucleation (Fig. 2). Evaluation of stained tissue sections revealed cords and nests of clear cells with round to oval nuclei and distinctive borders along with eosinophilic cytoplasm (Figs. 3 & 4). Clear cell tumours consist of sheets of clear cells along with hyalinized stroma and needs differentiation of this tumour from muco-epidermoid carcinomas on the basis of absence of intermediate or epidermoid cells (Speight and Barret, 2002).

On the basis of anatomical location and clinicopathological findings the present case is suspected to be

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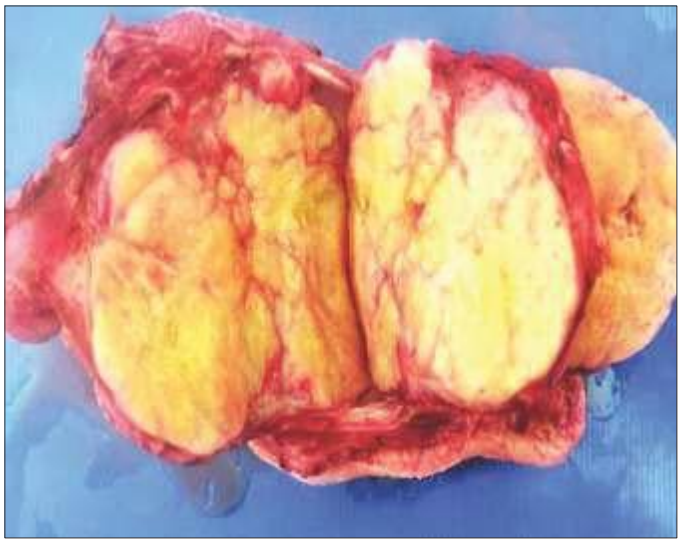

Fig. 1. Surgically excised tumour mass round –oval in shape present on the caudal border of mandible.

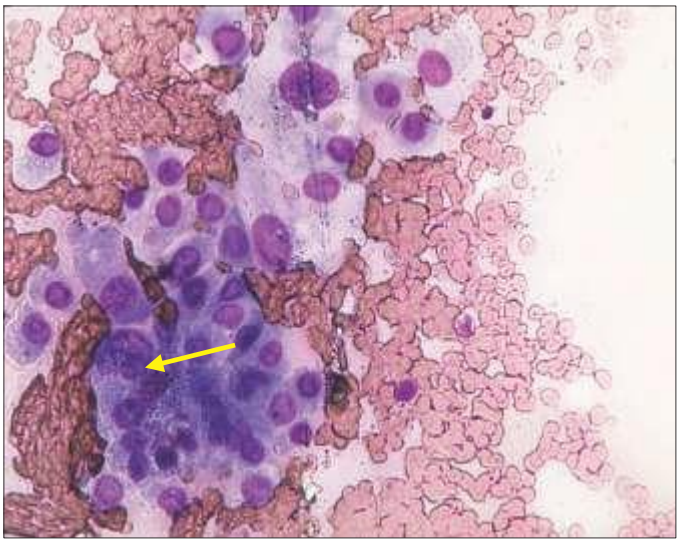

Fig. 2. Giemsa stained cytosmear depicting the presence of neoplastic cell population in bunches with pleomorphism, prominent nucleoli, and multinucleation (arrow). Giemsa stain X40

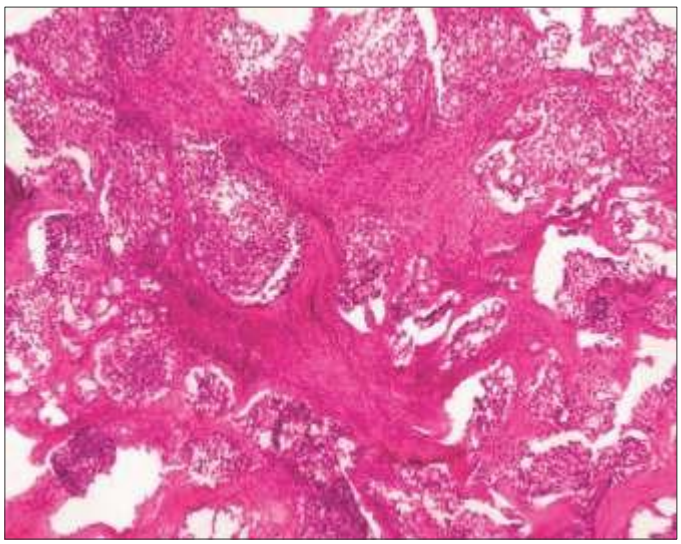

Fig. 3. Stained tissue section showing the presence of nests of clear cells with eosinophilic cytoplasm and hyalinized matrix. (H&E X20)

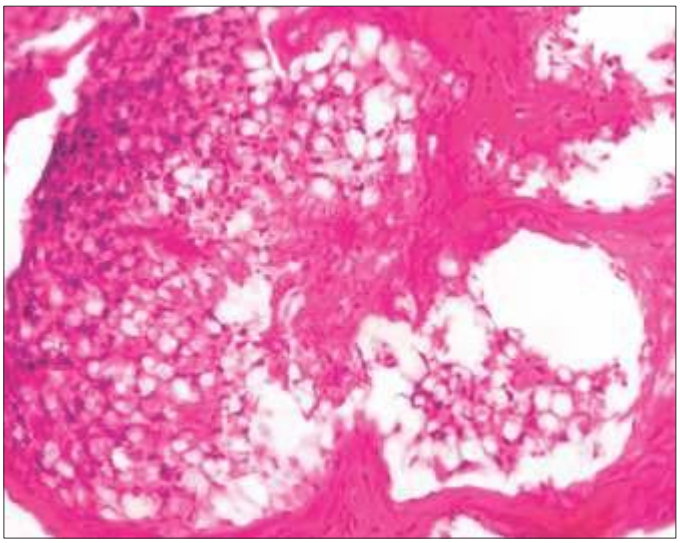

Fig. 4. Sheets and cords of clear cell population with round –oval nucleoli consisting of eosinophilic cytoplasm and distinctive borders. (H&E X40)

affected with clear cell tumour of salivary gland. Metastasis was not clinically identified in the animal. Most of the malignant salivary gland tumours are locally invasive and metastasize to regional lymph nodes and often reoccurs after excision (Carberry *et al.*, 1988).

The incidences of clear cell carcinomas are more common in other sites including kidneys and skin (Melson *et al.*, 2022), however the clear cell tumours of parotid gland are not so usual, but the occurrence is often life threatening because of its poor prognosis. Clear cell carcinoma should be discerned from poorly differentiated carcinomas, acinic cell carcinomas, mucoepidermoid carcinomas and epithelial myoepithelial carcinomas. For most clear cell carcinomas,the treatment of choice is wide surgical excision, but reoccurrence is also reported (Rodríguez *et al.*, 2013). A very limited information regarding primary clear cell carcinomas in salivary gland in animals in documented, whereas the recurrence and metastatic rates in human beings are 17 and 21%, respectively (Wang *et al.*, 2002). Therefore, the present case report signifies the need to generate more scientifically validated data related to the neoplastic conditions of salivary glands,which will provide a multidisciplinary approach in chemotherapeutic as well as surgical interventions in order to increase the chances of survival in affected animals.

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