

## Squamous Cell Carcinoma in the Nasal Cavity of an Intact Male Daschund

Gagana.H.S., Justin Davis.K., Deepa Chirayath.and K.Vijayakumar.

Department of Veterinary Epidemiology and Preventive Medicine, Kerala Veterinary and Animal Sciences University, College of Veterinary and Animal Sciences, Mannuthy, Trichur, Kerala, India- 680651

Date of Submission: 25-06-2021

Date of Acceptance: 07-07-2021

**Key words:** Epistaxis, Exfoliative cytology, Radiograph, Squamous cell carcinoma, Nasal cavity

### I. INTRODUCTION:

Tumors of the nasal cavity are uncommon in dogs and they account for 1-2% of all canine neoplasms and carcinomas account for approximately two thirds of these tumors. Dolichocephalic breeds aged more than 10 years are at greater risk of developing this disease. Even though the tumor rarely metastasize, due to local invasion into oral cavity, orbit and brain it is very difficult to treat the condition. Common symptoms noticed are sneezing, nasal discharge, epistaxis, stuffy nose, deformity of nose and face, snoring, ocular discharge. Once the diagnosis is made, the choice of treatment greatly depends on the location and size of the tumors obtained by radiography. Here we are discussing about the diagnosis of a Squamous Cell Carcinoma (SCC) in the nasal cavity of a dog.

### II. MATERIALS AND METHODS:

A 12 year old Daschund was presented to the University Veterinary Hospital Kokkalai with the history of sneezing, nasal discharge and intermittent bleeding from both the nostrils. Routine clinical examination was conducted and samples were collected. Blood sample in EDTA vial for complete blood count and buffy coat smear, blood in clot activator for serological examination,

blood from ear tip for peripheral smear and wet film examination was collected. Nasal swabs and flushing was collected aseptically from both the nostrils and was sent for exfoliative cytology, fungal culture and staining. Dog was sedated using combination of Atropine (0.5mg/Kg), Xylazine (1mg/Kg), Butorphanol (0.25mg/Kg) for collection of biopsy specimen for histopathology. Radiograph of dorsoventral view of head was advised.

### III. RESULTS:

On anamnesis animal was found to be an entire male dog with normal appetite and history of periodic vaccination and deworming. Bleeding was initially seen from the right nostril then the epistaxis became apparent after two weeks when there was discharge from both the nostrils.

On physical examination, the temperament of the animal was good with normal body temperature (102°F), mucous membrane was pale roseate, popliteal and mandibular lymph nodes were palpable. Sneezing and snoring was observed, with multifocal skin lesions. Detailed examination of face revealed swelling on the right nasal incisors which was soft on palpation (Fig.1). Heart rate was normal (100 beats/min) and rhythm was regular. The blood picture showed leukocytosis, granulocytosis, anaemia and anisocytosis (table 1). Serum parameters were within the normal range as mentioned in table 2.

Table 1: Complete blood count results tabulated below.

Sl no.	Parameters	Result
1.	White blood cells	$19.5 \times 10^3 / \mu\text{L}$
2.	Lymphocytes	16.4%
3.	Monocytes	5.6%
4.	Granulocytes	78%
5.	Red blood cells	$5.04 \times 10^6 / \mu\text{L}$
6.	Haemoglobin	11.2g/L

7.	Haematocrit	32.6%
8.	Mean corpuscular volume	64.7fL
9.	Mean corpuscular haemoglobin	22.2pg
10.	Mean corpuscular haemoglobin concentration	34.4g/dL
11.	Platelet count	398x10 <sup>3</sup> /μL
12.	RDW	15.5%

Table 2: Results of serological examination are mentioned below

Sl no.	Parameters	Result
1.	Blood Urea Nitrogen	18.78mg/dL
2.	Creatinine	0.764 mg/dL
3.	Alanine transaminase	78.65 IU/L

Radiographic examination of dorsoventral view of head showed haziness within the nasal passage without involving the bones of the nasal cavity suggestive of fungal colonies or tumor (Fig.2). Wet blood film, blood smear and smear from buffy coat was examined and was found to be positive for unsheathed microfilaria and was negative for other haemoparasites. Periodic acid Schiff staining of the smear was negative for fungal

spores and culture on Sabouraud dextrose agar (SDA) did not show any growth after the incubation period. Biopsy was unsuccessful as the location of growth was not known. Exfoliative cytology revealed presence of large clumps of epithelial cells derived from upper respiratory tract along with few mitotic figures and tadpole cells suggestive of squamous cell carcinoma (Fig. 3,4).



Fig.1: Swelling near the nasal inciciva



Fig.2: Hazziness in the nasal passage

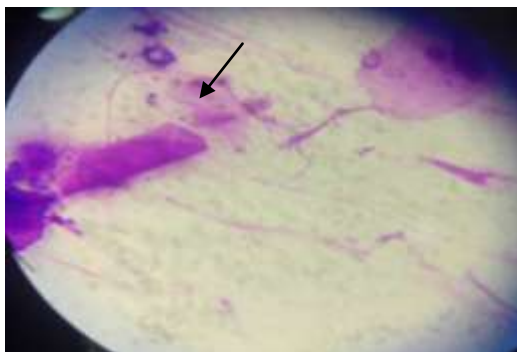


Fig.3: Appearance of mitotic cell, X1000, Giemsa stain

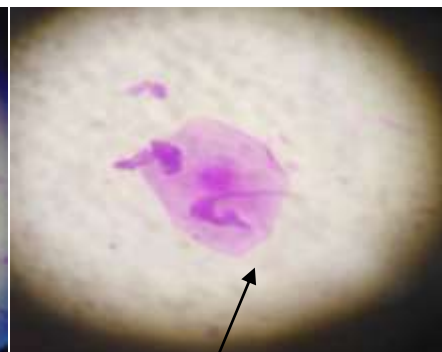


Fig.4: Appearance of tadpole like cells, X1000, Giemsa stain

#### IV. DISCUSSION:

Squamous cell carcinoma is one of the common nasal tumors which is locally invasive and spreads to nearby tissues and bone. Daschund being a dolichocephalic breed is predisposed for this condition. Exfoliative cytology revealed presence of large clumps of epithelial cells with few mitotic figures and tadpole cells suggestive of neoplasm (Chandrashekaraiyah et al., 2011). As there was no metastasis to the regional lymph nodes and with no involvement of facial bones, tumor was classified under Modified Adams staging system as T<sub>1</sub> (Kondo et al., 2008).

Ehrlichiosis was ruled out as there was no monocytosis or thrombocytopenia and blood and buffy coat smear was negative for the organism. *Aspergillus* spp was unable to grow in SDA where the main radiographic changes is thickened and mottled frontal bone, turbinate loss, increased radiolucency rostrally and increased opacity caudally (Sullivan et al., 1986). Periodic acid Schiff staining of the smear was negative for globular sporangia or spores of *Rhinosporidium* seeberi.

Complete count showed mild leukocytosis and anaemia which may be due to secondary bacterial infection and blood loss, respectively. As the lesion was localized, serum parameters were in normal range without much variation.

The treatment option for nasal tumor includes radiotherapy, chemotherapy, surgical removal or a combination of these. Surgical removal can be considered as the short term improvement of symptoms with the chance of recurrence. Radiotherapy can be performed with less side effects but the median survival time is not significant than that of the overall survival (Adams et al., 2009). Surgical resection involves the risk of anaesthesia and radiotherapy is not available at University Veterinary Hospital Kokkalai, the other option was chemotherapy. The chemotherapy protocol consists of a combination of carboplatin 300 mg/m<sup>2</sup> and doxorubicin 30 mg/m<sup>2</sup> (Woodruff et al., 2019). Commonly used antineoplastic agents like carboplatin, cisplatin has nephrotoxic, neurotoxic effects apart from side effects such as nausea and vomiting, loss of appetite, mouth sores, low blood count, constipation and diarrhea which may not be tolerated by a 13 year old dog. Hence chemotherapy was not advised and the parent was asked to look after the dog as he is and report if he encounters any distress.

A drop of adrenaline 1:1000 was instilled intranasal to control bleeding. Botroclot® was

advised for intranasal application. Treatment was given for microfilaria with single dose of oral Ivermectin (50µg/Kg) along with Prednisolone (0.5mg/Kg/day), Pheniramine Maleate (0.25mg/Kg) for three days to avoid anaphylactic reactions.

#### V. CONCLUSION:

Tumors in nasal cavity of canines are rare and dogs with sneezing, snoring and epistaxis can easily be misdiagnosed for ehrlichiosis or fungal infection. This dog was suspected for tumorous growth in the nasal cavity and the tests conducted were conclusive of the same. Although there are different conditions presenting similar clinical signs, justifications have been made regarding the diagnosis. As the dog was a geriatric patient care has been taken while choosing the treatment and mere palliative therapy was advised.

#### REFERENCES:

- [1]. Adams, W.M., Kleiter, M.M and Thrall, D.E. 2009. Prognostic significance of tumor histology and computed tomographic staging for radiation treatment response of canine nasal tumors. *Vet. Radiol. Ultrasound*. **50(3)**:330-335
- [2]. Chandrashekaraiyah, G.B., Rao, S., Munivenkatappa, B.S. and Mathur, K.Y. 2011. Canine Squamous Cell Carcinoma: a Review of 17 Cases. *Braz. J. Vet. Pathol.* **4(2)**: 79-86
- [3]. Kondo, Y., Matsunaga, S., Mochizuki, M., Kadosawa, T., Nakagawa, T., Nishimura, R. and Sasaki, N. 2008. Prognosis of Canine Patients with Nasal Tumors According to Modified Clinical Stages Based on Computed Tomography: A Retrospective Study, *J. Vet. Med. Sci.* **70(3)**: 207–212.
- [4]. Sullivan, M., Lee, R., Jakovljevic, S. and Sharp NJH. 1986. The radiological features of aspergillosis of the nasal cavity and frontal sinuses in the dog. *J Small Anim Pract*; **27**:167-180.
- [5]. Woodruff, M.J., Heading, K.L. and Bennett P. 2019. Canine intranasal tumours treated with alternating carboplatin and doxorubicin in conjunction with oral piroxicam: 29 cases. *Vet. Comp. Oncol.* **17**:42–48.