International Journal of Advanced Biochemistry Research

ISSN Print: 2617-4693
ISSN Online: 2617-4707
NAAS Rating (2025): 5.29
IJABR 2025; 9(8): 610-612
www.biochemjournal.com
Received: 02-06-2025
Accepted: 07-07-2025

Lalrinkima
Assistant Professor, Department of Veterinary Pathology, IVS & AH, SOA (Deemed to be University), Odisha, India

Dr. Muntasir Ashraf Wani
Assistant Professor, Department of Veterinary Pathology, IVS & AH, SOA (Deemed to be University), Odisha, India

Kiran Pattanaik
Assistant Professor, Department of Surgery and Radiology, IVS & AH, SOA (Deemed to be University), Odisha, India

Sanjeev Kumar
Assistant Professor, Department of Veterinary Microbiology, IVS & AH, SOA (Deemed to be University), Odisha, India

Khiangte Lalchhanhima
Veterinary Officer (MVU), State Veterinary Polyclinic, AH &Vety. Department, Govt. of Mizoram, India

Rinmuanpuii Ralte
Professor, Department of Veterinary Microbiology, Khalsa College of Veterinary and Animal Sciences, Amritsar, Punjab, India

Corresponding Author:
Dr. Muntasir Ashraf Wani
Assistant Professor, Department of Veterinary Pathology, IVS & AH, SOA (Deemed to be University), Odisha, India

Squamous cell carcinoma of oral cavity in a dog: A case report

Lalrinkima, Muntasir Ashraf Wani, Kiran Pattanaik, Sanjeev Kumar, Khiangte Lalchhanhima and Rinmuanpuii Ralte

DOI: https://www.doi.org/10.33545/26174693.2025.v9.i8h.5279

Abstract
A 14 year old male dog was presented with a history of nodular growth on the oral cavity and was brought to Veterinary Clinical Complex, Institute of Veterinary Science and Animal Husbandry, SOA, University. On gross examination, there was presence of circumscribe nodular mass on the oral cavity. Fine needle aspiration cytology revealed presence of cluster of pleomorphic squamous epithelial cells with tadpole cells. Histopathological examination showed nests of neoplastic cells surrounded by connective tissue stroma with formation of characteristic typical 'epithelial pearl' or 'keratin pearl'.

Keywords: Dog, squamous cell carcinoma, cytology, histopathology

Introduction
Canine malignant oral tumors contribute nearly 6-7% of all canine malignant tumors with oral cavity identified as the fourth most common location (Shafiuzama*et al.*, 2016; Brondene*t al.*, 2019; Satthathum *et al.*, 2023) [1, 2, 3]. In dogs, squamous cell carcinoma in oral cavity is the second most common oral tumors.The most common site of SCCinvolves the organs of the body that was lined by squamous epitheliumsuch as skin, eye, oral and nasal cavities, tongue, oesophagus and footpad (Bostock, 1986; Bregman*et al.*, 1987) [4, 5]. Dogs between 6 to 9 years of age group are commonly affected (Chandrashekaraiah *et al.*, 2011) [6]. On gross examination, SCC appears as erosive, ulcerated or nodular masses which resemble like a red plaques or cauliflower-like lesions (Dakshinkar*et al.*, 1988; Carpenter *et al.*, 1993) [7, 8]. Histopathologically, nests of neoplastic squamous cells were surrounded by connective tissue stroma with formation ofcharacteristic typical 'epithelial pearl' or 'keratin pearl' (Begum *et al.*, 2023) [9]. The present study report on the occurrence of squamous cell carcinoma of oral cavity in a dog.

Materials and method
The study was performed at Department of Veterinary Pathology, Institute of Veterinary Science& Animal Husbandry, SOA University. Fine needle aspiration was performed to rule out the nature of cells. The representative tissues samples were fixed in 10% formalin, the tissue were processed and paraffinized tissue were cut into sections of 4-5 µm thickness and stained with routine Hematoxylin and Eosin (H & E) for histopathological examination (Suvarna*et al.*, 2018) [10].

Results and Discussion
A 14 year old male dog was presented with a history of nodular mass on the oral cavity. Studies revealed that higher incidence occur mostly in older animals in skin due to the effects of prolonged exposure of ultraviolet (UV) light which concurred our findings. Gross examination revealed presence of circumscribes nodular mass on the oral cavity. Fine needle aspiration cytology revealed presence of cluster of pleomorphic squamous epithelial cells, round to caudate with distinct anisocytosis and anisokaryosis (Figure.1) with a long cytoplasmic process resembling a tail knownas tadpole cells (Figure.2). The cytological findings are in accordance with the earlier work of GarmaAvina (1994) [11] and Begum *et al.* (2023) [9] who describe squamous tumor cells arranged in individually or clumps,

pleomorphic in appearance, round to caudate with distinct anisocytosis and anisokaryosis with long cytoplasmic process resembling like a tadpole cells.

Histopathological examination show presence of nests of neoplastic squamous cell surrounded by connective tissue stroma with formation of characteristic typical keratin pearl (Figure 3).The proliferating cells exhibited moderate to prominent cellular pleomorphism and eosinophilic cytoplasm (Figure. 4). The histopathological findings are in support with the earlier work of Chandrashekaraiah *et al.* (2011) [6] and Begum *et al.* (2023) [9] who reported nests of neoplastic squamous cell with formation of typical keratin pearl at the centre.

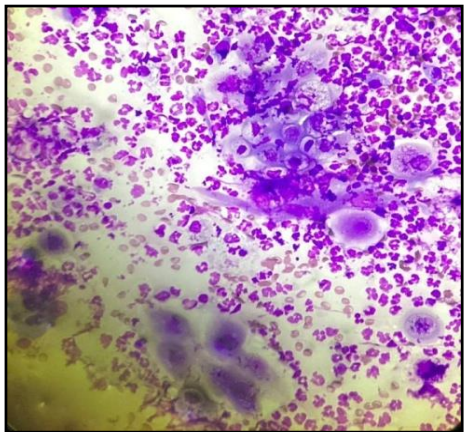

Fig 1: Cytology: Well differentiated pleomorphic squamous cells with anisocytosis and anisokaryosis. Giemsa, 400x

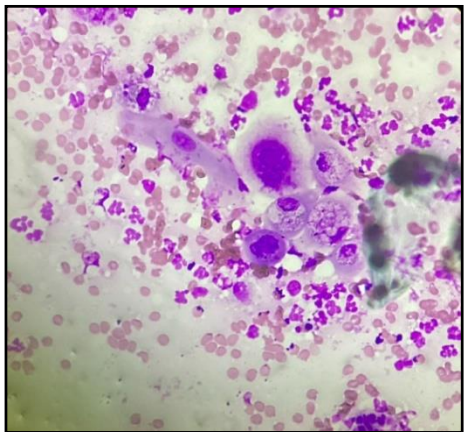

Fig 2: Cytology: Tadpole cells, Giemsa, 400x

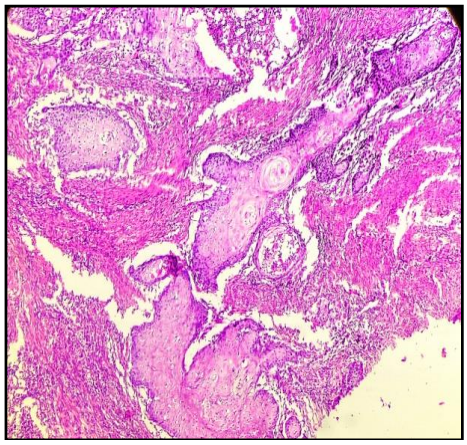

Fig 3: Histopathology: Nests of keratin pearls with connective tissue stroma, H & E, 100x

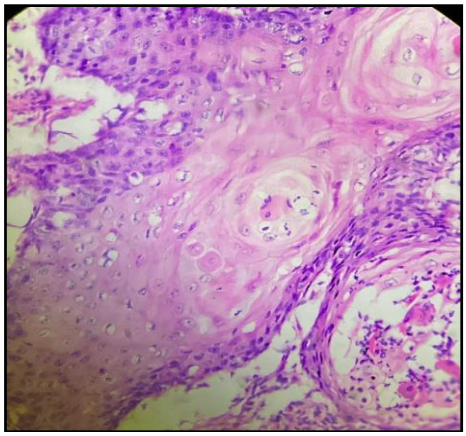

Fig 4: Histopathology: Nests of keratin pearls with cellular pleomorphism and eosinophilic cytoplasm, H&E, 400x

Conclusion

These alternative phrasings emphasize the synergistic role of both methods in reaching an accurate and conclusive diagnosis of canine SCC. Cytology offers a less invasive and faster initial screening, while histopathology provides a more definitive diagnosis by examining the tissue architecture and cellular differentiation.

References

1. Shafiuzama M, SabarishBabu MS, Krishnaveni N, ManojPrabhakar P, Hemalatha S, Souza NJD. Surgical management of extensive oral tumors by bilateral rostral mandibulectomy in two dogs. Iranian Journal of Veterinary Research. 2016;17(2):137-140.
2. Bronden LB, Eriksen T, Kristensen AT. Oral malignant melanomas and other head and neck neoplasms in Danish dogs: data from the Danish Veterinary Cancer Registry. Acta Veterinaria Scandinavica. 2019;51:54.
3. Satthathum C, Srisampane S, Jariyarangsrirattana P, Anusorn P, Sattasathuchana P, Thengchaisri N. Characteristics of canine oral tumors: insights into prevalence, types, and lesion distribution. Journal of Advanced Veterinary and Animal Research. 2023;10(3):554-560.
4. Bostock DE. Neoplasms of the skin and subcutaneous tissues in dogs and cats. British Veterinary Journal. 1986;142:1-19.
5. Bregman CL, Hirth RS, Sundberg JP, Christensen EF. Cutaneous neoplasms in dogs associated with canine oral papillomavirus vaccine. Veterinary Pathology. 1987;24(6):477-487.
6. Chandrashekaraiah GB, SugunaRao SR, Munivenkatappa BS, Mathur KY. Canine squamous cell carcinoma: a review of 17 cases. Indian Journal of Veterinary Pathology. 2011;35(2):187-189.
7. Dakshinkar NP, Dhakate MS, Pathak VP, Paikne DL, Sapre VA. Squamous cell carcinoma of foot pad in dogs. Indian Veterinary Journal. 1988;65:929-931.
8. Carpenter LG, Withrow SJ, Powers BE, Ogilvie GK, Schwarz PD, Straw RC, Larue SM, Berg J. Squamous cell carcinoma of the tongue in 10 dogs. Journal of the American Animal Hospital Association. 1993;29:17-24.
9. Begum S, Deka A, Tamuli SM, Dutta B, Buragohain M. Histopathological and cytopathological findings of canine squamous cell carcinoma. Haryana Veterinarian. 2023;62(1):162-164.

10. Suvarna KS, Layton C, Bancroft JD. Bancroft's theory and practice of histological techniques. 8th ed. Philadelphia: Elsevier Health Sciences; 2018.
11. Garma-Aviña A. The cytology of squamous cell carcinomas in domestic animals. Journal of Veterinary Diagnostic Investigation. 1994;6(2):238-246.