

Trichoblastoma in a dog: A case report

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ABSTRACT

A five-year-old male Labrador with a mass in the ear pinna was brought to the Madras Veterinary College Teaching Hospital, Chennai. On clinical examination, the mass appeared pale pink in colour, firm in consistency with discrete lobulation and measured 3 cm in diameter. Haemato-biochemical studies and imaging assessments revealed no abnormalities while cytological findings of the mass showed basal epithelial cells arranged in a row which was suggestive of trichoblastoma. Histopathological examination revealed cuboidal to elongated neoplastic cells with pale eosinophilic cytoplasm arranged in ribbon pattern, supported by fibrovascular stroma which was confirmative of trichoblastoma. Immunohistochemical studies also confirmed the tumour by showing positive expression of cytokeratin. Based on the laboratory findings, the tumour was identified as trichoblastoma.

Keywords: Cytokeratin, labrador, ribbon pattern, trichoblastoma

Trichoblastoma is a rare skin neoplasm derived from the primitive hair follicles, having epithelial and mesenchymal components. It is more prevalent in dogs and cats when compared to other species¹. They are dome-shaped, polypoid, solitary or multinodular tumours, usually smaller having a diameter of 1-2 centimetres and sometimes larger having a diameter of more than 30 centimetres². Clinical signs noticed include alopecia with or without ulcerated lesions. Ulcerations at the centre of the tumours are often the most common findings in large-sized tumours³.

Lesions usually affect the head, neck and especially the base of the ear. Pigmented lesions on the skin might have a grey or blue appearance². Four histological subtypes of canine trichoblastoma are recognized namely ribbon, trabecular, granular and spindle cell type. A combination of these patterns characterizes the majority of cases, with ribbon epithelial aggregates predominating and being encircled by fibrous stroma^{4,5}.

Among various breeds of dogs affected, Poodles and Cocker Spaniels are more likely to develop trichoblastoma and Basal cell carcinomas. Nevertheless, the additional significant breed predispositions are found in Siberian Huskies, Cockapoos, Kerry Blue Terriers, Bichon Frises and Shetland Sheep dogs⁴. With regard to the age affected, it is more common in the age group of 4 to 9 years⁵. However, no sex predilections were recorded⁶. Cytological examination revealed small clusters of basal epithelial cells which were suggestive of basal cell carcinoma due to their high nucleus-cytoplasm ratio, monomorphic nuclei and strongly basophilic and pigmented cytoplasm⁷.

A five year old male labrador dog with a history of swelling in the medial aspect of the ear pinna region was brought to the Madras Veterinary College Teaching Hospital for clinical diagnosis and treatment. The dog's tutor reported that the primary issue was a gradual rise in the area of the dog's ear, accompanied by itching and touch sensitivity for the past two months. Blood samples were collected for routine haematological and biochemical studies using autoanalyser's (Mindray - BC-2800 and A15 Biosystems) and the animal

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was subjected to various imaging techniques namely radiography and ultrasound imaging. In addition, fine needle aspiration procedure was performed on the lump for cytological studies. The aspiration smears were air dried and stained with Leishman and Giemsa cocktail stain as described⁸. Excisional biopsy was performed and the mass was removed. The tissue samples were collected in 10% formalin, processed by routine paraffin embedding method, stained by haematoxylin and eosin and subjected to histopathological studies. For immunohistochemical studies, the tissue samples were processed by routine paraffin embedding method and the cut sections were treated with specific marker namely cytokeratin.

On clinical examination, a

Table 1. Hematology

Parameters	Values	Reference Values	Differential Count	Values	Reference Values
Haemoglobin	11.9 g/dl	11.9-18.9 g/dl	Neutrophils	75	60-75%
PCV	42%	37-55%	Lymphocytes	20	12-30%
RBC	4.89 m/cmm	4.95-7.87 m/cmm	Monocytes	5	3-9%
WBC	12000/cmm	6000-11000/cmm	Eosinophils	0	2-10%
Platelets	297000/cmm	2-9/cmm	Basophils	0	0%
Blood Picture	NAD		Parasite	Nil	

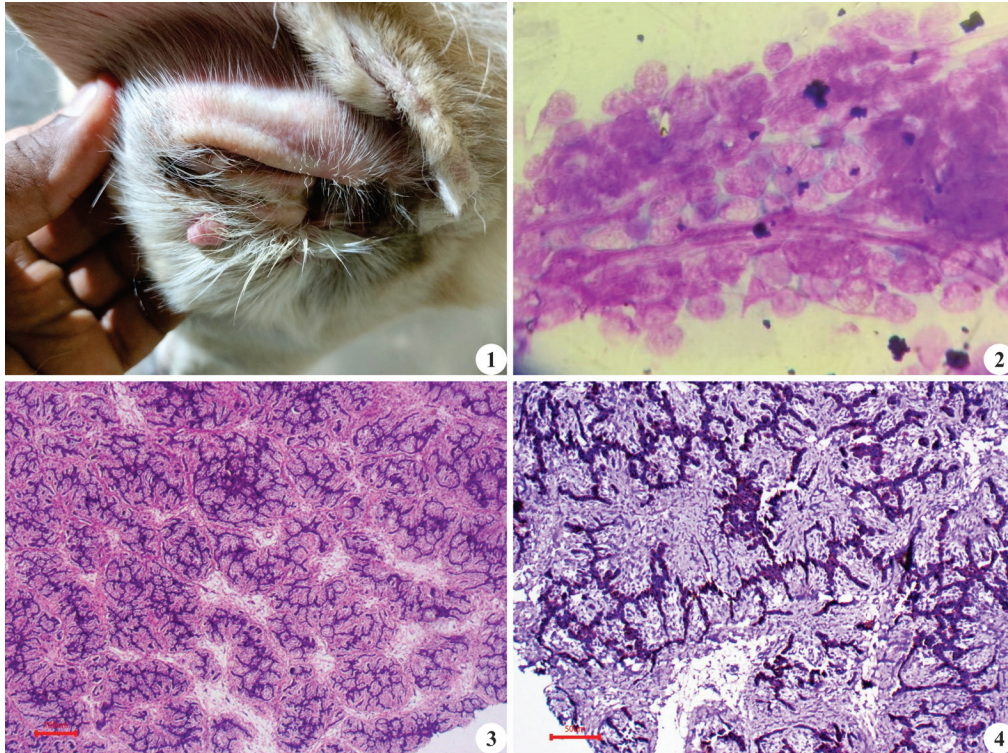


Fig. 1. Trichoblastoma - Raised, oval, alopecic, solitary, hard nodule in ear; **Fig. 2.** Trichoblastoma - Small clusters of basal epithelial cells arranged in a typical row (LG Stain 5 µm); **Fig. 3.** Trichoblastoma - HP cells are arranged in ribbon like pattern, cells have scanty cytoplasm and uniform (H&E 100 µm); **Fig. 4.** Trichoblastoma - IHC - Cytokeratin has moderately expressed (H&E x100).

well-defined, mass of 3 cm in diameter and localized alopecia were found in the ear pinna region (Fig. 1). The tumour mass measured 3.0 x 3.0 x 4.0 cm in size, appeared pale pink in colour and firm in consistency with discrete lobulation. The haematobiochemical findings recorded in the present study are shown in Table 1 and 2. No abnormal findings were recorded either in haematobiochemical studies or imaging tests except fine needle aspiration cytology. Cytological studies revealed small

clusters of basal epithelial cells arranged in a typical row (Fig. 2). Histopathological studies revealed numerous small cuboidal to elongated cells with a pale, sparse eosinophilic cytoplasm containing round to oval nucleus with loose chromatin and little discernible nucleolus. Neoplastic cells were grouped into islands, palisades, or strings (ribbon type) with the fibrovascular stroma separating them (Fig. 3). Immunohistochemical studies revealed positive expression of cytokeratin in basal

Table 2. Serum Biochemistry

Parameters	Values	Reference Values	Parameters	Values	Reference Values
BUN	13 mg/dl	10-28 mg/dl	ALP	98 U/L	1-114 U/L
Creatinine	0.8 mg/dl	0.7-1.4 mg/dl	Calcium	9.86 mg/dl	9.1-11.7 mg/dl
Total Protein	7.2 g/dl	6.1-7.8 g/dl	Phosphorus	3.43 mg/dl	2.9-5.3 mg/dl
Albumin	3.4 g/dl	3.1-4 g/dl	Glucose	78 md/dl	76-119 md/dl
ALT	20 U/L	10-109 U/L			

epithelial cells (Fig. 4). Based on the present laboratory findings, the tumour was identified as trichoblastoma.

The diagnosis of trichoblastoma was confirmed by the clinical study of the case in conjunction with the cytological and histological investigation of the tumour, which made physical and cellular changes visible². The present cytological findings were small, grouped basal epithelial cells, characterized by a high nucleus-cytoplasm ratio, monomorphic nuclei and intensely basophilic and pigmented cytoplasm in a dog affected with trichoblastoma⁷. The present histological lesions, the presence of neoplastic trichoblasts with scanty, pale eosinophilic cytoplasm containing ovoid, euchromatic nuclei and small nucleoli were noticed^{3,4}. Immunohistochemical lesions described in the present study observed the positive staining of neoplastic epithelial cells for cytokeratin^{4,10,11}.

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REFERENCES

1. Mauldin EA and Peters-Kennedy J. 2016. Integumentary system. Jubb, Kennedy & Palmer's Pathology of Domestic Animals: Volume 1: 509.
2. Haydardedeoğlu AE, Ergin İ, Alihosseini H, Çolakoğlu EC and Baydın A. 2015. Atypical localised benign adnexal Tumour (Trichoblastoma) in a dog. *Kocatepe Vet J* 8: 93-95.
3. Gross TL, Ihrke PJ, Walder EJ and Affolter VK. 2008. Skin diseases of the dog and cat: Clinical and histopathologic diagnosis. John Wiley & Sons.
4. Campos AG, Cogliati B, Guerra JM and Matera JM. 2014. Multiple Trichoblastomas in a dog. *Vet Dermatol* 25: 48-e19.
5. Goldschmidt MH and Goldschmidt KH. 2017. Epithelial and melanocytic tumours of the skin. In Tumours in Domestic Animals. Meuten DJ (Ed), Fifth edition. Wiley Blackwell, Danvers 88-141.
6. Raval SH, Joshi DV, Patel BJ, Patel JG, Prajwalita S, Panchal HM and Patel PG. 2015. Hair follicle tumours in dogs: A report of two cases. *Indian J Vet Pathol* 39: 84-86.
7. Machado de Souza, VF Pereira, ZS Carneiro I deO, Gomes Júnior DC, Frade MTS, Alves da Silva and Vieira LC. 2020. "Trichoblastoma in a Dog: A Clinical, Diagnostic and Therapeutic Analysis". *Acta Sci Vet* 48.
8. Garbayl RS, Agarwal N and Kumar P. 2006. Leishman-Giemsa Cocktail, An Effective Romanowsky stain for air dried cytologic smears. *Acta Cytol* 50: 403-406.
9. Kumar S, Sakshi V and Kumar V. 2024. Trichoblastoma in an Indian Dog: A clinical and diagnostic investigation. *Indian Journal Anim Health* 63: 141-142.
10. Yoon JS and Park J. 2014. Immunohistochemical characterisation of a canine case of granular cell type trichoblastoma: a case report.
11. Sakuma A, Nishiyama S, Yasuno K, Ohmuro T, Kamiie J and Shirota K. 2010. A case of canine cutaneous clear cell adnexal carcinoma with prominent expression of smooth muscle actin. *J Toxicol Pathol* 23: 265-269.