

Trichoblastoma in an Indian Dog: A clinical and diagnostic investigation

S. Kumar¹, Sakshi², V. Tiwari² and V. Kumar^{3*}

¹Department of Veterinary Pathology, Faculty of Veterinary and Animal Sciences, Rajiv Gandhi South Campus, Banaras Hindu University, Mirzapur- 231 001, Uttar Pradesh, India; ²B.V.Sc. & A.H. Professional, Faculty of Veterinary and Animal Sciences, Rajiv Gandhi South Campus, Banaras Hindu University, Mirzapur- 231 001, Uttar Pradesh, India; ³Teaching Veterinary Clinical Complex, Faculty of Veterinary and Animal Sciences, Rajiv Gandhi South Campus, Banaras Hindu University, Mirzapur- 231 001, Uttar Pradesh, India

Abstract

A dog with a history of an ulcerated exophytic growth at the dorsal lumbar region. This exophytic mass was solitary, firm, nearly 15.5×7.5 cm in dimension, and 600 g in weight after excision. Grossly, this mass was alopecic, ulcerated, and composed of multiple lobules. Histopathologically, it comprises primitive hair cells arranged in a palisade of two to three cells with minimal stroma. These neoplastic basaloid cells have a small amount of pale eosinophilic cytoplasm with indistinct borders and together with a lot of plump stromal cells morphologically resembling hair papillary cells. It was diagnosed as trichoblastoma and was cured by the complete excision.

Keywords: Dog, Exophytic mass, Primitive hair cells, Trichoblastoma

Highlight

- Trichoblastoma is grossly characterized by solitary, firm, nearly 15.5×7.5 cm in dimension and can grow 600 g in weight.
- Histologically, trichoblastoma comprises multiple cords of benign neoplastic hair germ cells with vesicular nuclei and is subdivided into different types depending upon the arrangement of neoplastic cells.
- Trichoblastoma with subtype ribbon was characterized by neoplastic hair germ cells arranged in a palisade arrangement of two to three cell rows and surrounded by thin bands of interlobular collagenous stroma.

Trichoblastoma, a benign tumor either develops or differentiates from hair germ cells. Trichoblastoma is one of the cutaneous tumors reported in dogs. Previously, this tumor was reported as a basal cell tumor because tumor cells morphologically resembled with the basal cells of the epidermis. Now this tumor is reclassified as trichoblastoma (Meuten, 2016). Usually, these tumors are solitary but may be multinodular, dome-shaped to polypoid. Most of the tumors are 1 to 2 cm in diameter, but much larger (exceeding 30 cm) may occur (Haydardedeoglu *et al.*, 2015). Grossly, trichoblastomas are noted with or without alopecic that may have ulcerated lesions. Generally, large-size tumors are most commonly reported with ulceration in the center of tumor. Incidence of trichoblastomas is mostly noted in the 6 to 9 years old age group on the head and neck as primary locations of the lesions (Haydardedeoglu *et al.*, 2015).

In the reported case, five years old, a non-descript female dog was presented for treatment at Teaching Veterinary Clinical Complex, Faculty of Veterinary

and Animal Sciences, Rajiv Gandhi South Campus, Banaras Hindu University for an ulcerated exophytic growth at the dorsal lumbar region as major clinical manifestation as shown in Fig. 1.A. The mass was noticed by the owner six months ago as a tiny nodule on the skin surface and grew continuously. Initial radiological observation revealed the growth over the dorso-lumbar area without involvement of the musculoskeletal system, showing distortion of the plane of the tissues and its clustering (Fig. 1.B). Representative biopsy samples were collected and fixed in 10% buffered formalin solution immediately for histopathological examination. The tissue section was cut using the paraffin embedding technique and stained with Haematoxylin and Eosin staining method (Luna, 1968).

After complete surgical excision, grossly, it was found that the mass was solitary, firm, nearly 15.5×7.5 cm in dimension (Fig. 1.A), and 600 g in weight. The mass was alopecic and ulcerated from the center (Fig. 2.A). The cut surface of this mass appeared whitish-

*Corresponding Author, E-mail: vet.vk134@gmail.com

Trichoblastoma in a dog

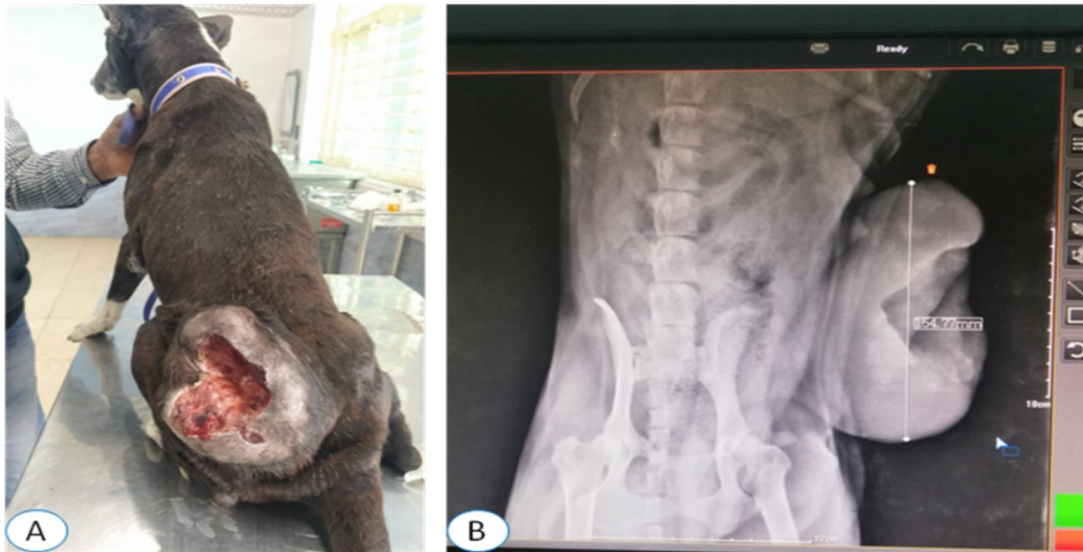


Fig. 1. Trichoblastoma: A. Exophytic growth at lumbar region, B. Dorsoventral radiograph showing exophytic growth over dorsolumbar area without the involvement of musculoskeletal system

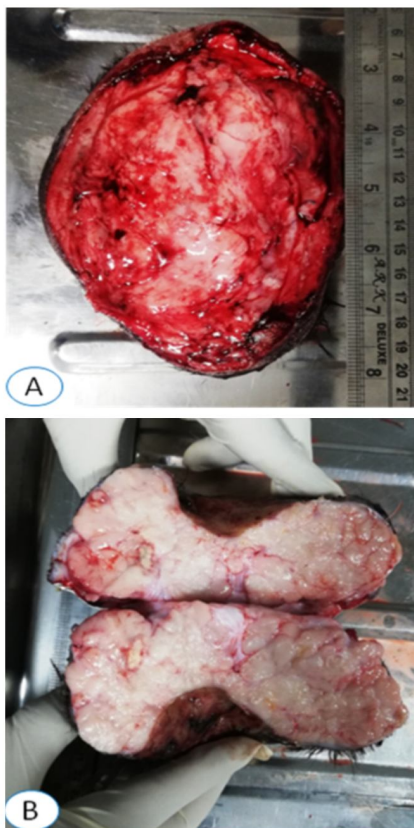


Fig. 2. Trichoblastoma: A. Sessile attached surface after excision surgically, B. Cut section showing multiple lobulation of varying size

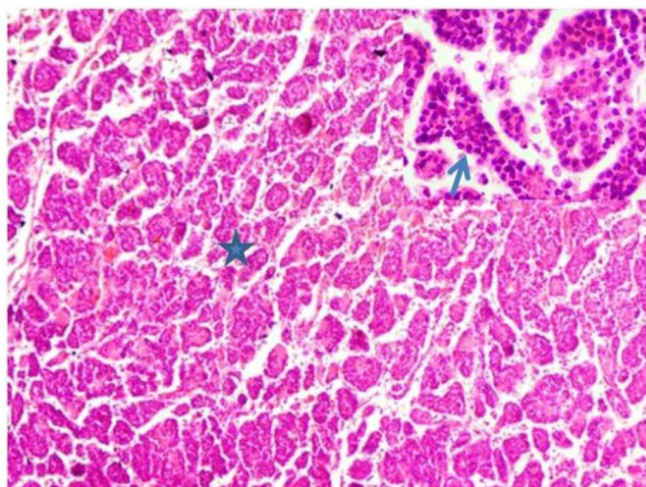


Fig. 3. Trichoblastoma, dog. Note the primitive hair cells arranged in palisade of two to three cells with a very small amount of stroma (10X). Inset, Neoplastic basaloid cells have a small amount of pale eosinophilic cytoplasm with indistinct border and together with a lot of plump stromal cells morphologically resembling hair papilla cells. (100X). H&E stain

grey in color and subdivided into multiple lobules. This lobulation varied in size and was covered by varying degrees of stromal trabeculae (Fig. 2.B). At focal places, necrotic tissues were also seen in the cut section. The gross lesions observed in the present report are also in accordance with Sawale *et al.*, 2015.

Histopathological examination of current samples showed the features of trichoblastoma with subtype ribbon, which is characterized by multiple cords of benign neoplastic hair germ cells with vesicular nuclei. These primitive cells have a small amount of pale eosinophilic cytoplasm with indistinct borders. These cells were arranged in a palisade arrangement and surrounded by thin bands of interlobular collagenous stroma. These cords or trabeculae were composed of two to three cells in thickness with varying degrees of stroma. The thickness of collagenous stroma was quite variable between the lobules (Fig. 3). Mineshige (2014) reported trichoblastoma with abundant plump stromal cells in a dog. He revealed that this tumor was composed of many lobules with good demarcation. Each lobule was composed of epithelial neoplastic cells together with abundant plump stromal cells and formed irregular cell cords or trabeculae that arranged in the characteristic palisade's arrangement. This is in accordance with the findings of the reported case. The

histopathological lesion described in the present study is also in accordance with Goldschmidt and Hendrick (2002) and Campos *et al.* (2014).

Trichoblastoma, a benign, neoplastic, exophytic proliferation of primitive hair germ over the skin surface, was cured by the complete excision surgically as metastasis in this tumor had not been generally observed.

Conflict of interest: Authors have no conflict of interest in this study.

Author's contributions: SK, VK: Carried out diagnosis and the complete surgical procedure; SK, VK: Outlined the manuscript; S, VT: Deliberated the essential post-operative care plan.

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