

MANAGEMENT AND HISTOPATHOLOGICAL CHARACTERIZATION OF DERMAL SQUAMOUS CELL CARCINOMA IN A DOG: A CASE REPORT

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Cutaneous squamous cell carcinoma is a frequently observed dermal tumor of dogs, generally found in older dogs. It is commonly induced by solar ultraviolet radiation. In the present study, a male labrador dog aged eleven years was presented to Department of Veterinary Pathology, Nagpur Veterinary College, Nagpur. Grossly, the skin of the affected dog had small grayish- white, ulcerated and rapidly growing mass which was expansile in nature. Representative tissue samples were collected in 10% neutral buffered formalin for histo-pathological examination. Microscopically, cords of invasive epithelial cells were present. Epidermal dysplastic hyperkeratosis nests of proliferating squamous cells with keratin pearls separated by fibrous stroma was observed. Neoplastic cells were arranged in cord- like fashion. Neoplastic cells were flat, polyhedral with pink vacuolated cytoplasm. The nuclei were ovoid to elongated, hyperchromatic, containing one or two nucleoli. Based on histopathology reports, the tumor mass was diagnosed to be that of squamous cell carcinoma.

Keywords: Squamous cell carcinoma, Histopathology.

Cutaneous squamous cell carcinoma, also called as actinic keratosis is a malignant tumor of epidermal cells in which cells show differentiation in keratinocytes. The epidermis, or skin, consists of several layers. The outer layer is made up of scale like cells called the squamous epithelium. This layer of tissue covers the surface of much of the body, and lines the cavities of the body. A squamous cell carcinoma is a type of cancer that originates in the squamous epithelium. It may appear to be a white skin mass, or a raised bump on the skin. Often the raised mass will necrotize in the center and ulcerate, with occasional bleeding. Its an epithelial tumor that can arise from various sites of body, with greater predilection for oral cavity (44.9%) and skin (44.9%), and with lower propensity for occurrence in mammary gland, nasal cavity, lung and bladder as reported by Willcox *et al.* (2019). It is stated that it accounts for ten percent of all cutaneous tumors found in dogs. These tumors generally grow slowly and are aggressive in nature. The incidence of tumors arising from skin is higher than the tumors arising from any other location in canines as reported by Meshram *et al.* (2014). Solar ultraviolet rays induced

tumours occur most commonly in non pigmented regions with minimal haircoat coverage, and are also associated with histopathologic actinic change as reported by MacMillan *et al.* (1982).

As carcinomas are characteristically malignant and particularly invasive, it is essential to have this form of skin cancer diagnosed and treated without delay. Cutaneous squamous cell carcinomas are typically fast growing tumors that get bigger with time and resist healing. If the ulcers are diagnosed before they have had an opportunity to become malignant, this condition may be treated effectively in some cases.

Cutaneous squamous cell carcinoma is considered to be locally invasive with a variable rate of metastasis. The prognosis is largely dependent on anatomic site of location

Materials and Methods

Representative tissue samples were collected in 10% neutral buffered formalin for histopathology from a eleven year old male labrador dog, suspected for squamous cell carcinoma. Grossly, the skin of the affected

dog had small grayish- white, ulcerated and rapidly growing mass which was expansile in nature.

Results and Discussion

Microscopically, epidermal dysplastic hyperkeratosis nests of proliferating squamous cells with keratin pearls separated by fibrous stroma was observed. Neoplastic cells were arranged in cord- like fashion. Neoplastic cells were flat, polyhedral with pink vacuolated cytoplasm. The nuclei were ovoid to elongated, hyperchromatic, containing one or two nucleoli. Higher nuclear to cytoplasmic ratio was observed.

Differentiation of basal cells to keratinocytes is still present. A concentric aggregation of cornfield squamous epithelial cells (Note the prominent keratin pearl formation; blue arrow) is visible with pleomorphism of nuclei, rare mitotic figures

and giant nucleus formation and also, the cells had distinct borders, ranged from polygonal to round or elongate, and had moderate amounts of eosinophilic cytoplasm furthermore, the sub-epidermis is focally thickened by large keratinocytes containing increased quantities of pale white cytoplasm that is variably vacuolated HE. $\times 400$ (Fig.1).

Nuclei are round to oval with irregular profiles. Moreover, a high nucleus: cytoplasm ratio, thick nuclear membranes and clumped chromatin are often found together with the degree of nuclear pleomorphism and the mitotic rate varied among the sample. Note the arrangement of some large vesicular nuclei into small nests HE. $\times 400$ (Fig.2).

Based on histopathology findings, the tumor mass was confirmed to be cutaneous squamous cell carcinoma.

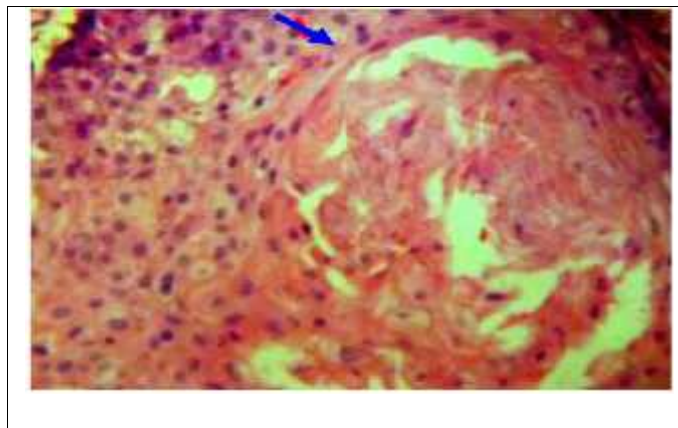


Fig. 1- HISTOLOGIC APPEARANCE OF WELL DIFFERENTIATED SCC (H & E x 400).
Note the prominent keratin pearl formation; blue arrow.

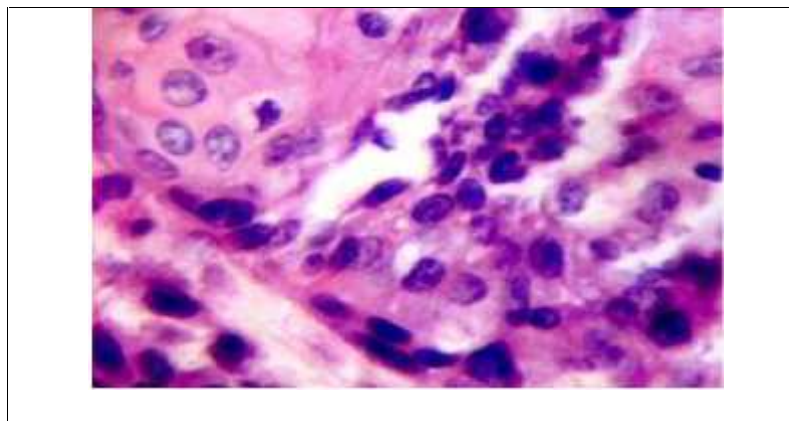


Fig. 2- CANINE SQUAMOUS CELL CARCINOMA (H & E x 400).

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