

## Histopathological Characterization of Canine Skin Neoplasms in Dogs

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### Abstract

A neoplastic proliferation is an abnormal growth of tissues which develops in an uncoordinated and uncontrolled manner as a result of some unusual stimulus. It does not serve any useful purpose to the host rather proves to be harmful which varies according to the nature of neoplasms. It disturbs the normal physiological mechanisms of the body depending on its lodgment. Neoplasm is very prominently seen to infect the dermal and epidermal skin layers in dog.

**Key words:** dog, neoplasm, proliferation, skin

### Introduction

Neoplasia involves some permanent tissue alterations, manifesting itself in the form of excessive tissue multiplication and can be transmitted through generations. The highest percentage of neoplasm is found in the skin and connective tissue area, followed by mammary glands and venereal areas in dog [1].

### Materials and Methods

Materials for this investigation were collected from various veterinary hospitals located within Kolkata metropolis. The dogs presented with detectable growths on skin

were studied carefully for any clinical abnormality. Detectable cases of neoplasms were detected during the present study. The gross appearance of each tumor mass was recorded. Pieces of tumor tissues which were collected after biopsy were kept in vials containing neutral formal saline solution for histopathological examination in the laboratory. Biopsied skin tissues were processed and stained by Haematoxylin and Eosin method as per the procedure described by Lillie [2].

### Results and Discussion

Histopathological changes of some clinical cases of dogs suffering from skin neoplasia were recorded in the present study at the Department of Veterinary Pathology, West Bengal University of Animal and Fishery Sciences, Kolkata, India.

An Alsatian dog about 12 years old was suffering from multiple tumors on its flank region. Nodular shaped tumor was ulcerated, reddish-brown with areas of hemorrhages and yellow areas of necrosis. Histological examination showed Consisted of interwoven bundles of immature fibroblasts and moderate numbers of collagenous fibres. Hyperchromatic nuclei with disintegrated cytoplasmic area hemorrhage and edema were seen. It was diagnosed as fibrosarcoma. Fibrosarcoma has been recorded in 9.40% cases in dogs in West

Bengal by Bhowmik and Nandi [3]. Stannard and Pulley [4] recorded similar type of neoplasms in dogs. Frese et al. [5] studied skin neoplasms in 3,492 specimens and reported that 68% and 31% cases were benign and malignant in nature respectively.

A 9-year old Alsatian dog was showing a tumor in the neck region. It was 3 cm in diameter, ovoid, moderately firm, reddish black in color. There was bleeding from cut surface. Histological examination revealed elongated neoplastic cells with hyperchromatic nuclei. Macrophages were filled with hemosiderin. Endothelial cells were present in vascular space along with thrombi, hemorrhage and necrosis. It was diagnosed to be hemangiosarcoma. However, Damodaran et al. [6] described 5 cases of hemangioma in dog which affected their heart, spleen and subcutaneous tissues.

An ulcerated cauliflower like growth was found on the toes of an 11-years Spitz dog. Histological examination showed squamous cells arranged in cords or whorls with keratinized centres. Mitotic figures were seen. Cytoplasm was eosinophilic and nucleus was pyknotic. Concentric layers of squamous cells showed gradually increasing keratinization towards the centre. It was diagnosed as squamous cell carcinoma. Bhowmik and Nandi [3] observed squamous cell carcinoma in a survey in 11.37% cases. This type of carcinoma was recorded from tumors on skin, ear, eye and buccal mucosa.

An 8-year old Cocker Spaniel dog showed a cystic growth on neck region. The tumor was firm and well demarcated. The growth was 3 cm in diameter. The upper surface was ulcerated. Cut surface was grayish-white in color. Histological examination revealed the nuclei were embedded in a mass of poorly defined cell boundaries. Mitotic figures were seen. It was diagnosed to be basal cell epithelioma. Basal cell epithelioma has

been reported by different workers from different States of India [7], [8]. Nayak et al. [9] recorded basal cell carcinoma at the ear base of a bitch in West Bengal. In a separate study, Bhowmik and Nandi [3] recorded 1.12% cases of basal cell carcinoma in dogs.

An 11-years old French Poodle on clinical observation showed nodular growth on head. The area was hairless with an outgrowth of firm mass on it. The mass was 1 cm in diameter. Histopathological examination revealed that tumor was composed of predominantly active mitotic generative cells of sebaceous glands. Single cells showed lipid vacuoles representing the start of differentiation foci with squamous epithelium and keratinization, which represented areas of differentiation towards sebaceous gland structure. It was diagnosed as sebaceous adenoma. Bhowmik and Nandi [3] remarked that sebaceous gland carcinoma are the most common epithelial skin tumors in dogs accounting for approximately one-third of the occurrence of total skin neoplasia cases in them. In some sebaceous adenomas, foci with squamous epithelium and keratinization have been presented [10].

#### **Acknowledgement**

The authors are thankful to Hon'ble Vice Chancellor, West Bengal University of Animal and Fishery Sciences for providing necessary facilities to carry out this research work.

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