

# Skin Cancer

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Together with mammary cancers (see next section), cancers of the skin comprise 58% of the total cancers occurring in the dog, and thus, account for the majority of canine cancers. The most common skin neoplasm of the dog is the mastocytoma (mast cell tumor), which accounts for as many as 20% of all possible skin tumors. Mast cells are a connective tissue cell that secrete heparin (an anti-coagulant) and histamine (an agent that controls permeability of blood vessels and which is responsible for swelling) and hence, are involved in inflammatory responses. Mastocytomas occur more frequently in Boxers, Boston Terriers, and Labrador Retrievers. These tumors occur in both sexes with equal frequency.

## Average Age of Onset

Mastocytomas usually present in middle-aged or older dogs.

## Cause

Both chromosomal and proto-oncogene abnormalities have been discovered in cancer cells originating from mast cells. Mast cell activation is associated with allergic reactions in which antibodies produced against a particular allergen bind to the mast cells and cause release of its biologically reactive agents. Chronic activation of mast cells that have been genetically compromised by hereditary or environmental

factors may lead to transformation of these cells to a cancerous state.

## Symptoms

Mast cell tumors may appear anywhere in the skin, but occur most frequently on the posterior half of the body particularly on the limbs or on the scrotum of males. There are predominantly two forms of mastocytomas. The more common type appears as a quickly growing and ulcerated mass that may occur as either a single- or multi-nodular tumor. The tumor is firm, white, but often has areas of bluish-purple attributed to broken blood vessels. The second type grows slowly without ulceration, appears yellowish in color and is soft and flabby. discomfort to the female.

## Diagnosis

Clinical diagnosis is made by biopsy of the lesion. In cases of ulcerated lesions, a rapid biopsy may be obtained by touching a microscope slide to the surface of the ulceration to obtain a cell sample for analysis.

## Treatment

The treatment of choice is surgery involving radical excision of the tumor and some surrounding tissue and removal of regional lymph nodes, which are often the first sites of metastasis. Following healing at the surgical site, radiation therapy is administered to provide control against local recurrence of the tumor. Inoperable tumors may be treated with radiation and chemotherapy. Partial surgery of inoperable

tumors followed by injections of deionized water at the site of the tumor, has been found to control recurrence of tumors, as well. These injections are continued at 10-21 day intervals. Use of corticosteroids, like Prednisone, may also help to control inoperable, wide-spread mast cell tumors.

## Prognosis

Dogs diagnosed with poorly-differentiated mast cell tumors by biopsy experience only short-term survival (~18 weeks) compared to dogs with well-differentiated tumors (~51 weeks) following surgery. In cases of incomplete surgical excision followed by radiation therapy, approximately 77% of treated dogs were still alive at 2 years following treatment. Mast cell tumors of the extremities respond better to radiation therapy than those tumors invading the trunk of the body. Tumor deaths are usually associated with metastasis to the regional lymph nodes, spleen, liver, kidneys, lungs, and heart that impair organ function.

## Prevention

Prevention of mastocytoma is similar to prevention of other general neoplasms: the avoidance of carcinogens that may predispose to genetic defects. In those dogs who may carry a higher risk of mastocytoma due to inherited genetic defects of mast cells (family history of mast cell tumor), avoidance of allergens that may stimulate the abnormal mast cells may help to reduce occurrence of these tumors.

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