

# Oral Malignant Melanoma

## What is malignant melanoma?

Malignant melanoma is a cancer that arises from cells that produce the black pigment melanin. Oral melanoma is the most common oral tumor in dogs and can affect the lips, gingiva, and the tongue. This tumor is both locally aggressive and rapidly metastatic (high ability to spread to other body sites). Specific metastatic sites include the regional lymph nodes, lungs, and liver, however metastasis can occur anywhere. Unfortunately, metastasis is frequently the cause of death with this cancer.

## What are the symptoms?

Most dogs have minimal side effects and often an oral mass is noted on a routine physical or incidentally by the owner. Large masses can cause excessive drooling, bleeding, difficulty eating and drinking, or bad breath. Signs of metastatic disease include swelling of a lymph node in the neck region, weight loss, coughing, and general malaise (lethargy).

## How is it diagnosed?

A biopsy is recommended for any abnormal mass in the mouth to obtain a diagnosis. Special stains may be requested to confirm melanoma in cases where melanin (black pigment) is not seen in the cancer cells. A CT scan or MRI of the oral cavity may be helpful in determining the extent of the disease and for surgical planning.

Prior to beginning any treatment, staging is recommended for both treatment planning and prognostic purposes. This includes thoracic radiographs (to evaluate for lung metastasis), full lab work (CBC, chemistry, and urinalysis), and evaluation of the draining regional lymph nodes via fine needle aspirates. An abdominal ultrasound may be recommended if bloodwork abnormalities are noted or if clinical signs related to the abdomen are reported.

## What are the treatments?

- **Surgery:** Surgical excision of the primary mass is the foundation for treatment of this disease. Complete surgical margins are essential given the extremely high recurrence rate of this tumor, and therefore sometimes surgeries that include the removal of bone are necessary to achieve adequate margins. These are commonly performed surgeries in dogs and most owners report minimal to no change in quality of life.
- **Radiation Therapy:** Radiation therapy is utilized for dogs with non-resectable tumors or for tumors in which complete margins are unable to be obtained. Melanomas respond better to radiation that is given in large doses (fractions) on a less frequent basis and therefore only approximately 6 treatments are administered. Side effects of radiation therapy (delivered in this manner) are mild and may include a mild superficial dermatitis that would occur on the skin exposed to the radiation field. When used to address incomplete surgical margins, this treatment is associated with an ~70% chance of patients being disease-free at the primary tumor site at 1 year, however this treatment will not address the potential for metastatic disease.
- **Melanoma Vaccine:** The vaccine has recently received full licensure by the US Department of

Agriculture under the trade name ONCEPT for dogs with stage II and III oral melanoma. The USDA approval of ONCEPT™ represents the first licensed therapeutic vaccine for cancer in human and veterinary medicine. The vaccine acts through the stimulation of an immune response against human DNA for the gene tyrosinase which is normally expressed on melanocytes. Human DNA has been shown to stimulate a very active and lasting immune response against tyrosinase in canine melanoma cells. The vaccine has demonstrated to be effective at prolonging survival time in dogs with all stages of oral melanoma and may be translated to dogs with melanoma affecting other sites. Side effects reported are mild but can include a transient low-grade fever, an occasional injection site reaction and pigmentary changes in the darkly pigmented regions (nose, paw pads, etc).

- The vaccine is administered once every other week for 4 treatments and a booster vaccine is administered every 6 months thereafter. The vaccine is best used as an adjunct to surgery and/or radiation therapy to control both local and metastatic disease.
- **Chemotherapy:** Melanoma tends to be a chemo-resistant disease with poor response rates seen in the setting of gross disease and inadequate control for managing microscopic disease. Because of the chemo-resistant nature of this tumor, other therapies are typically favored initially. Chemotherapy may be used for dogs with resistant metastatic disease or in combination with other treatments.
- **Non-steroidal anti-inflammatory medication:** Non-steroidal anti-inflammatory drugs (NSAIDs) including Piroxicam, Previcox, Rimadyl, etc act by blocking the COX-2 receptor. Many cancer cells including melanoma express COX-2, and therefore this medication may help slow the progression of this tumor. The side effects associated with these medications can include both gastrointestinal signs and kidney damage. Kidney values will be monitored periodically with blood work.

## What is the prognosis?

Oral malignant melanoma is an aggressive cancer. Prognosis is highly dependent on size and location of the primary tumor. Masses that are in the front of the mouth and small carry the best prognosis and are the most amenable to surgery. Dogs with oral masses in the middle or back of the mouth and/or with large masses tend to have a poorer prognosis and are less amenable to surgery. Furthermore, dogs with evidence of lymph node or pulmonary metastasis carry a poorer prognosis. However, a multi-modal approach including surgery, the Melanoma vaccine and possibly radiation therapy typically yield the most favorable results for all stages of disease.