



ANIMAL EMERGENCY CENTER

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at the heart of critical care

MALIGNANT MELANOMA IN DOGS

INTRODUCTION

Melanomas are tumors arising from pigment cells. In dogs, they most commonly occur on the skin, in the mouth, and on the toenails. While the majority of skin melanomas are benign in dogs, the majority of oral and toenail melanomas are malignant, with the potential both to invade local tissue, to regrow after surgery, and to spread to other parts of the body. In humans, melanoma development appears to be related to sun exposure. We do not know what causes melanomas to occur in dogs, but sun does not appear to be a factor.

DIAGNOSIS AND STAGING

Most melanomas in the mouth or skin will present as dark, raised masses. In the mouth, they can be associated with drooling, foul odor, bleeding from the mouth, or difficulty eating. Those occurring on the toenail can be associated with toe swelling, loosening of the affected toenail, or lameness on the affected leg. A diagnosis of melanoma will usually require a **fine needle aspirate** or **biopsy**. Some melanomas can be misleading because, although derived from pigment cells, they can be a normal, pinkish skin color (so-called amelanotic melanomas).

Prior to devising a treatment plan, some initial tests will usually be performed to determine overall patient health, and if the tumor is localized to the primary site or whether there is any evidence of spread. These tests include blood tests evaluating blood cell number and organ function, a **fine needle aspirate** of the lymph node draining the tumor area, and **X-rays** of the lungs and/or tumor site.

TREATMENT AND PROGNOSIS

Surgery is the first line of defense for melanomas. Dogs who receive an aggressive surgery first (to minimize the likelihood of leaving microscopic tumor cells behind) may do better than those receiving conservative surgery. The majority of dogs with malignant melanoma arising from a location other than the skin will develop problems related to tumor recurrence or spread (metastasis) in the future. The average survival time with surgery alone is approximately 6-8 months, with dogs with larger tumors or tumors that have spread to the lymph node more likely to fall short of this mark.

In cases where surgery is not possible or has been declined, radiation therapy can sometimes be used. This involves the application of a powerful form of radiation directly to the tumor area. Radiation therapy has the potential to shrink many large melanomas and may be able to delay or prevent local tumor regrowth if tumor cells have been left behind after surgery.

There have been no controlled studies evaluating the effectiveness of any forms of treatment after surgery to prevent metastasis. There is some indirect evidence that the

chemotherapy drug **carboplatin** might have the ability to delay or prevent metastasis after surgery. This drug is given once every 3 weeks for a total of four treatments. Chemotherapy is generally very well tolerated, with some dogs experiencing mild side effects that usually go away by themselves. Less than 5% of dogs experience severe side effects that would require hospitalization and supportive care.

Another form of treatment that has the potential to be useful in delaying or preventing tumor spread is the use of a tumor cell vaccine. In theory, it is possible to vaccinate cancer patients against tumor recurrence much in the same way that we can vaccinate against infectious diseases such as rabies or distemper. Studies performed in mice and humans, and previous studies we have performed in dogs with melanoma, suggest that this treatment holds promise. As with carboplatin, we have no statistics yet regarding how effective this form of treatment is after surgery. With tumor cell vaccination, dogs receive injections into the skin of another dog's melanoma cells that have been inactivated with radiation to prevent their growth after injection and genetically engineered to produce an immune-stimulating hormone. Injections are given weekly for 4 weeks, then every other week for another four treatments, then monthly thereafter.

In cases where surgery is not possible, chemotherapy or tumor cell vaccination can sometimes shrink these tumors for varying periods of time.

FOLLOW-UP

At various time points during and after treatment, it is important to pursue rechecks for evidence of regrowth or spread to the lymph nodes or lungs. Should these be seen in the future, there may be other types of treatment that can be contemplated. A typical recheck schedule would involve evaluation of the local site, lymph nodes and lungs every 3 months for 18 months, then twice yearly thereafter.