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Melanoma

Melanoma is a cancer of the cells in the body which produce skin pigment (melanocytes). In dogs, they most commonly occur in the skin, in the mouth, at the toenails and in the eye. Certain breeds are more likely to develop melanoma than others, including Poodles, Dachshunds, Rottweilers, Cocker Spaniels, Irish Setters, Scottish Terriers, Chow Chows, Miniature Schnauzers, Labradors, Boxers, and Golden Retrievers. Melanoma is most commonly seen in middle aged and older dogs. Melanomas are relatively rare in cats, most commonly encountered in the eye. Other affected sites in cats include lips, oral or nasal mucosa, or nasal planum.

While the majority of skin melanomas are benign in dogs, melanomas in the mouth (oral melanoma) and melanomas in the nail bed (subungual melanoma) are generally malignant. This means that, as well as producing an invasive growth at the local tissue, the cancer cells tend to spread elsewhere in the body.

Diagnosis and Staging

Most melanomas will present as dark masses but some melanomas (especially in mouth) can lack the pigment. Tumours in the mouth can often grow to be very large before they are detected by an owner or veterinarian, and also often invade deeply into the surrounding bone. Commonly noticed signs can include bad breath (halitosis), bleeding from the mouth, or difficulty eating.

A diagnosis of melanoma will usually require a fine needle aspirate or biopsy. Prior to planning any treatment, we usually perform some tests to determine overall patient health and whether the tumour is localised to the primary site or whether there is any evidence of spread.

The most common places for melanoma to spread are the regional lymph nodes (glands), lungs, liver and less commonly adrenal glands and brain.

Clinical stages of canine oral melanoma

Clinicians use the term ‘staging’ to determine how advanced a cancer is. These staging categories are defined differently for all types of tumours and shown below is the staging system for oral malignant melanoma in dogs.

- Stage I tumour < 2cm diameter, no spread to the lymph nodes (glands)
- Stage II tumour: 2 to 4 cm diameter, no spread to lymph nodes (glands)
- Stage III tumour: > 4 cm and/or spread to lymph nodes
- Stage IV tumour: any size with distant metastatic disease (spread) to other organs

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Exceptional Care

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We usually identify the stage of disease by performing advanced imaging (such as CT scans) to look at the local tumour area, the chest (lungs) and abdomen. In many cases, we will also need to define which lymph nodes communicate with the tumour and could be affected by tumour spread. This process is called 'sentinel lymph node mapping' and involves a small amount of contrast agent being injected around the tumour prior to the CT scan. This sentinel lymph node might be removed at the same time as primary tumour. The CT scan is also used to perform a 3D reconstruction in order to better plan surgical resection of the tumour.

Treatment

Surgical removal of the tumour is the treatment of choice and it has been shown that dogs undergoing surgery have best outcomes. This might not always be possible if the tumour is large, has invaded into other structures such as bones, or has already spread. This is why performing advanced imaging such as CT is crucial in management of tumours affecting the mouth. Surgery often involves removing part of the upper or lower jaw in order to get a tumour free margin of tissue. Surprisingly, most dogs tolerate this surgery very well and will even eat the evening of surgery.

When the tumour cannot be completely removed and/or it has spread to local lymph nodes then another form of local therapy, radiation therapy can be used. This involves a local application of a powerful form of radiation directly onto the tumour area. It can shrink many large melanomas and it may help in delaying or preventing local tumour regrowth if tumour cells were left behind after surgery. Radiation therapy is only offered at a small number of veterinary referral centres in the UK. Onward referral to these centres can be arranged from Anderson Moores if deemed appropriate.

There have been no randomised clinical trials evaluating the effectiveness of any forms of additional treatment after surgery to prevent metastases (spread). Unfortunately, melanoma seems to be naturally resistant to most chemotherapy drugs, and response rates and durations of response are disappointing. Conventional chemotherapy has not been shown to give survival benefit for dogs that had been treated with aggressive surgery and/or radiation therapy.

There is some evidence suggesting that a novel class of targeted drugs called TKIs (tyrosine kinase inhibitors) may also help to slow the progression of more aggressive melanomas. These drugs interfere with tumour cell growth and division and are used in the management of a variety of cancers. The advantage of the medication is that it is given at home in forms of tablet. Whether your pet would benefit from this medication will be discussed during your appointment.

A vaccine has been developed for canine oral melanoma (ONCEPT™ melanoma vaccine, Merial) as an adjuvant treatment to surgery and/or radiation therapy. This form of treatment is called immunotherapy and is based upon the concept of stimulating the body's own immune system (that normally fights infection) to recognise one of the proteins on the cancerous melanocytes as a 'foreign protein'. This leads the body's immune system to destroy the cancer cell (just like it normally would with bacteria or viruses) and in this way the body controls the growth

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of the tumour. There is conflicting evidence available regarding the effectiveness of Oncept, with some studies suggesting that following surgery, some dogs do benefit from the vaccine, while sadly, others may not. The vaccine is administered initially as a course of 4 vaccinations, with each dose given 2 weeks apart. Booster injections are then required every 6 months, assuming a favourable response to therapy. The vaccine is given via a needle-free device in the inner thigh. The vaccine is generally very well tolerated and carries a low risk of causing any problems.

Prognosis

Oral melanoma: Unfortunately oral melanoma is incurable. The majority of dogs with malignant melanoma arising from a location other than the skin will develop problems related to tumour recurrence or spread (metastasis) in the future. Dogs with smaller tumours, amenable for surgical excision and without metastases experience average survival of more than a year. For other dogs expected survival could be a few months and if no treatment is given, dogs are euthanized within few weeks due to discomfort from the tumour.

Nail-bed melanoma: If there is no spread (metastasis) identified at time of diagnosis, survival time following amputation, is reported to be on average 1 year.

Cutaneous melanoma: Many dogs can be cured with surgical removal of their tumour, although occasionally more aggressive tumour behaviour is identified in some cases.

Follow-up: After treatment is completed, we strongly advise regular rechecks for evidence of regrowth or spread to the lymph nodes or lungs. A typical recheck schedule would involve physical examination at your local veterinarian or with us initially every month and every 3 months thereafter. We also recommend repeating imaging such as radiographs or CT to evaluate for tumour spread to the lungs.

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