

MAST CELL TUMOURS IN DOGS



Mast Cell Tumours (MCT) are very common in dogs, but extremely rare in humans. They do occur in cats, but not as frequently as in dogs. In cats, they are frequently low-grade, however there is an unusual form in cats that affects the spleen, liver and other internal organs.

Mast Cells are a special type of blood cell and these cells normally respond to allergens and inflammation. Sometimes; these cells can become cancerous developing into mast cell tumours. The most common locations for these tumours are in the skin.

These tumours have no classical appearance and often are mistaken for benign disease. It is impossible to know if a skin mass is a MCT without looking at cells under the microscope (see cytology in 'cancer basics and terminology').

Mast cell tumours are malignant tumours that have the ability to recur after conservative surgery, and may spread to other organs. Mast cells contain substances that can be released into the bloodstream and potentially cause systemic problems. These problems include stomach ulcers, bleeding, or allergic-like reactions (anything from swelling around the tumour itself to life threatening shock). Therefore, we often treat our MCT patients with antihistamines, antacids and corticosteroids as part of their therapy.

Cutaneous Mast Cell Tumours

The skin is the most common site for MCT in the dog. These tumours are locally invasive and can also sometimes spread to other distant areas of the body. The most common sites of spread are the lymph nodes, spleen, liver and the bone marrow.

The initial evaluation of a dog with a MCT usually includes a fine needle aspirate - cytology or a biopsy - histopathology, complete blood count, serum chemistry profile, urinalysis, lymph node biopsy or fine needle aspirate, abdominal ultrasound and sometimes thoracic radiography to evaluate lymph nodes in the chest cavity. In some cases, we may also do a bone marrow aspirate to look for malignant mast cells there.

From a biopsy or the tissue removed at surgery, the pathologist assigns a "grade" to the tumour when tissue is examined by histopathology. We use the grade to help predict how the tumour will behave. This influences both the prognosis (outcome) and treatment plan. For example, low or intermediate grade tumours are less likely to spread, so complete surgical removal of the tumour may be the only treatment required. High grade tumours often have a high chance of spreading so we consider using chemotherapy or palladia in conjunction with complete surgical removal or surgery and radiation therapy in these dogs.

Treatment Options

Treatment options for cutaneous MCT include surgery, chemotherapy, palladia, radiation therapy, combination therapy and symptomatic or supportive treatment. Surgery is usually our first treatment choice. Because these tumours are invasive, the surgeon must remove the tumour with a large margin of normal appearing tissue both around and underneath the tumour to ensure complete removal. MCT are deceptive, and sometimes what we can see and feel represents only a small part of the tumour.

Our oncology surgeons are skilled in removing these tumours and performing reconstruction so the dog regains an excellent quality of life. However, even when a large margin is taken, sometimes tumour cells are still left behind. When this occurs, additional treatment is needed. Options in this scenario include further surgery, radiation or combination treatment that may include chemotherapy or palladia as well.

It is important to remember that surgery is a local treatment and has no effect on the spread of the tumour. Chemotherapy and palladia can be beneficial in delaying, preventing or treating metastasis (cancer spread) since they are systemic treatments. The most commonly used chemotherapy protocols involve using vinblastine and lomustine otherwise known as CCNU either alone or together and sometimes in conjunction with prednisolone. The best treatment options for your dog will be discussed with you by your oncologist. We may also prescribe additional medications to treat tumour and treatment related side effects.

Palladia (toceranib) is a specific cancer medication licensed for use in dogs to treat mast cell tumours. It is a small molecule that blocks a cell membrane receptor in the group of receptors called the tyrosine kinase receptors. Your oncologist will be able to more completely explain how this drug may be appropriate in the treatment of your dog's cancer.

The prognosis for cutaneous MCT depends upon several things, including the microscopic appearance (grade) of the tumour, the staining pattern of a specific immunohistochemistry stain in the cells from the biopsy (c-KIT or CD117 staining pattern), the presence of mutations in exons 8 and 11 evaluated by genomics, location of the tumour, growth rate, size of the tumour, and the presence or absence of metastasis. It is important to remember that many of these tumours are successfully treated.

Follow up visits and rechecks are important for monitoring after completion of cancer treatment. Depending on the stage of cancer and type of treatment this follow up may require some ultrasounds and tests. Any future "lumps" and "bumps" should be evaluated promptly by us or your vet with an aspirate because some dogs are at risk for the development of new but unrelated mast cell tumours. Early detection and removal increases the likelihood of successful treatment.

Our oncologists, surgeons, internists and radiation oncologists are available to help you and your pet so please ask your veterinarian for a referral.