

Canine mast cell tumour

Mast cell tumours (MCT) are the most common skin cancers in dogs. They are less common in cats and rare in people. A mast cell is a type of white blood cell normally involved in allergic and inflammatory responses. Some of the genetic abnormalities that occur within mast cell tumours are now identified (i.e. kit mutation), however, the exact cause of this cancer remains unknown. Breeds such as boxers, boston terriers, pugs, labrador retrievers and staffordshire bull terriers appear to be at greater risk of developing a MCT.

Most MCT's begin in or underneath the skin. They generally appear as a lump and can be reddened or ulcerated, however their appearance can vary widely. For this reason, all skin lumps should be evaluated. Although less common, MCT's can originate in other areas of the body, such as the spleen, intestinal tract and/or liver. These may be associated with: weight loss; inappetence; lethargy; abdominal distension or diarrhoea. Mast cells contain granules which store chemical substances such as histamine and heparin. Mast cells can then release these active substances into the rest of the body. This can lead to: redness and swelling of the MCT; allergic reactions; abnormal bleeding and/or stomach ulcers. Mast cell tumours vary immensely in the way they behave, they are 'predictably unpredictable'. Some will never progress further than a small skin lump whilst others can grow rapidly and spread elsewhere in the body (metastasise).

Diagnostic tests

Most commonly a diagnosis is obtained by taking an aspirate or biopsy from the mass. The type of sampling is determined by the size and location of the tumour, the team at AVC will discuss the options with you. Only a tissue biopsy can reliably establish **grade**, which is an estimate of how aggressive the cancer appears. This can help to determine the likely behaviour of the MCT and guide further treatment. There are two main ways of assessing grade, a well-established 3-tier system or a newer 2-tier system. The former uses grades 1 to 3. Grade 1 MCT's are associated with more benign behaviour and are often cured with surgery whilst grade 3 MCT behave aggressively with a high rate of metastasis. It can be more difficult to predict the behaviour of grade 2 mast cell tumours, however there are markers that can help and the team at AVC will discuss these with you. The newer 2-tier system uses simply a high (aggressive) and low grade classification. This system appears helpful at determining the risk of the tumour causing death. Often a combination of these grading schemes is used.

Staging is a term to describe screening the body for cancer at other sites. For MCT's this could include sampling local lymph nodes, abdominal ultrasound, chest radiographs, and possibly a bone marrow aspirate. The team at AVC will discuss with you which tests are appropriate for your pet and how they might alter prognosis and treatment. Blood and urine tests are usually performed to assess the general health of your pet prior to treatment.

Treatment

Surgery is the mainstay of treatment for most canine mast cell tumours. These tumours tend to burrow deeply into tissue. The surgeon will need to take a wide margin of normal tissue around the tumour to decrease the likelihood of it growing back. Surgery can cure lower grade MCT's, unless the pathologist or clinician suspects that cancer cells were left

behind. In this situation, additional therapy options should be discussed.

Chemotherapy is recommended for patients with: high grade or inoperable tumours; metastatic disease (cancer spread) or for residual cancer left behind after surgery. AVC typically uses a combination of tablets and injections. Chemotherapy is generally well tolerated in animals, for more information please see information sheet – Chemotherapy in pets.

Targeted therapy, or Palladia, fights the cancer in a different way to traditional chemotherapy. This involves giving regular oral medications and is used in similar situations to chemotherapy. Testing can be done on a patients' biopsy to help us determine whether Palladia is an appropriate treatment for your pet. This treatment is preferably used in combination with surgery, chemotherapy and/or radiotherapy rather than on its own.

We may also prescribe medication to ameliorate MCT related side effects. This may include an antihistamine (Clarantyne, Zyrtec) and/or an antacid (to combat stomach acidity and ulcers). If your pet passes any dark stools please contact us, as this may be a sign of gastrointestinal ulceration.

Radiation therapy can also be used to treat MCT's, particularly for inoperable tumours or when residual cancer is left behind after surgery. It is a local treatment only and is generally used for lower grade tumours as it does not address metastatic disease.

Prognosis

The prognosis for a MCT can be difficult to predict. We use factors such as: grade; rate at which cells multiply (mitotic index); tumour location; presence of spread and whether the MCT is new or has recurred. There are also specific tests available that can give more information regarding prognosis and AVC can organise these if appropriate. Grade is by far the most useful prognostic factor. As a general rule, 90% of grade 1 MCT patients and 80% of grade 2 patients live more than 12 months after surgery, and many will be cured. For grade 3 MCT patients the outlook with surgery alone is more guarded and can be improved with the addition of chemotherapy.

The prognosis is often less favourable for patients with metastases, recurrent or inoperable tumours and those that occur in locations other than the skin (i.e. intestines, spleen). The goal of treatment in these situations may be to shrink the tumour, control adverse systemic effects and maintain a good quality of life.

Follow up

After your pet's treatment has finished, there will be a period of monitoring and surveillance. This will be tailored to each patient, depending on their response to treatment and their individual situation. AVC recommends a revisit examination 1 month after completion of treatment and then every 3 months afterwards. Up to 50% of dogs diagnosed with a MCT will develop another MCT, typically at a different skin location, over the course of their life. Hence, it is important to monitor your pet for new masses and evaluate these if and when they arise. Early diagnosis and treatment are likely to improve the outcome.