

Canine Cutaneous Mast Cell Tumours

Mast cell tumours in dogs are common tumours of the skin. Whilst many mast cell tumours can be cured by appropriate management, dogs that get one can frequently develop other separate mast cell tumours elsewhere on their skin at other times in their life.

What is a Mast cell tumour?

Mast cell tumours in dogs arise from a special type of cell that typically lives in the skin. Their job is to orchestrate inflammatory reactions. Therefore, mast cell tumours in dogs can show changes typically associated with inflammation like swelling and redness and owners may also observe a change in size.

There is a marked variation in the degree of severity of a mast cell tumour and for this reason a tumour grading scheme is used. This categorises mast cell tumours into three groups usually described as grades 1, 2 and 3; sometimes the terms well-differentiated, intermediately differentiated and poorly differentiated are used. The tumour grade significantly influences the treatment decision-making process. Many of these tumours can be cured but only by appropriate intervention and it is imperative to find out what grade a mast cell tumour is before definitive treatment is planned.

The higher grade a tumour is, the more likely it is to infiltrate into the normal looking body tissues around the tumour and the more likely it is to spread through the body via the blood or lymph systems. Mast cell tumours do not have a typical appearance and so any lump in or under the skin could be one. Diagnosis is typically made by fine needle aspirate; this allows the acquisition of a small number of cells from a lump that can then be examined under a microscope. Sedation is rarely required, and mast cell tumours are very readily identified by this means.

Patient evaluation

Once a mast cell tumour has been diagnosed, the next step is to determine its grade. This requires a biopsy to be obtained and submitted to a pathology laboratory.

Sometimes mast cell tumours are not identified until after surgery of what had appeared to be an innocuous skin lump. The pathology laboratory describes the presence of a mast cell tumour and they will usually define the tumour grade and comment on the degree of invasiveness of the tumour. Under these circumstances further treatment is often necessary as the surgery has rarely been adequate to remove the cancer completely.

In the initial assessment of any patient with a lump that is considered likely to be cancerous, the local lymph nodes are examined by palpation. If they are enlarged, samples need to be obtained to determine whether there is evidence of tumour spread.

Treatments

Low grade mast cell tumours in dogs can be cured in almost all cases. Surgical removal with appropriate margins of apparently normal tissue (1cm) is appropriate.

Intermediate grade tumours require wider margins of excision, 2-3cm is appropriate in most cases, with a complete unadulterated layer of protective fibrous tissue removed to prevent spread through the underside of the tumour. It is important to note though that approximately 15% of these patients have spread of their tumour before the diagnosis is made. There is clearly limited merit in successful removal of a single lump in the skin if cancer is left behind in other parts of the body.

High grade mast cell tumours in dogs can be big, red and frequently discharging serum or blood with no apparent border between the normal and the cancerous tissues. Surgical removal of these tumours requires much wider margins of normal tissue to be removed with associated protective fibrous layers than for the intermediate grade tumours. Approximately 80% of these mast cell tumours in dogs have spread before the time of diagnosis and therefore the role of surgery in their management is limited. Other treatments do exist for canine cutaneous mast cell tumours. As a rule, they are less effective than surgery in that they do not cure the disease. However, there are instances when these treatments are more appropriate.

Chemotherapy

Chemotherapy is an important tool in the management of metastatic mast cell tumours. Chemotherapy is the use of medication(s) to treat cancer. Traditional chemotherapy medications prevent cells from dividing, which makes these drugs particularly effective against cancer cells. Chemotherapy has the benefit of treating cancer throughout the body as the drugs are carried through the blood stream. Therefore, chemotherapy should be considered for dogs with high grade (Grade 3) and/or Stage 2 or higher mast cell tumours, since these dogs have high risk or confirmed for metastasis. Chemotherapy is recommended for patients with multiple simultaneously-occurring mast cell tumours, high-grade mast cell tumours and patients with metastasis to lymph nodes or internal organs. Chemotherapy may also be helpful for reducing the size of a mast cell tumour prior to attempting surgery, as well as lowering the risk of tumour recurrence following narrow or incomplete surgical removal.

Radiotherapy

Radiotherapy or radiation therapy has a particular role to play in the management of mast cell tumours at sites that are not amenable to surgery, for instance the lower limb or around the face. Radiotherapy can dramatically affect the further progression of mast cell tumours in dogs, irrespective of tumour grade, with many cases failing to worsen for many months or even years after treatment. For this reason, radiotherapy is also used in the post-operative management of some mast cell tumours, when there is a strong suspicion of incomplete removal. By and large the side effects of radiotherapy are minimal; a small number of cases develop reddening of the skin that can be irritating but this tends to be short-lived. More serious effects can develop in the long term and for this reason radiotherapy is undertaken less freely in younger patients. Unfortunately, radiotherapy is only available at specialist referral hospitals in the UK and is often prohibitively expensive.