

# MAST CELL TUMORS

## About the Diagnosis

Mast cell tumors are growths that commonly affect the skin of dogs and, less commonly, cats. They are potentially serious, since some mast cell tumors are malignant (cancerous). However, they often are benign (not malignant), and additionally, there are many, many other types of benign skin growths that can occur that resemble mast cell tumors but are in fact different. It is not possible to tell with the naked eye alone whether a specific skin growth is a malignant mast cell tumor or not, and therefore, some diagnostic tests are always necessary to confirm mast cell tumors.

While most mast cell tumors affect the skin (cutaneous mast cell tumor), sometimes they may affect internal organs (visceral mast cell tumor). In cats, for example up to 50% of mast cell tumors occur in the spleen, whereas this form is rare in dogs. Another uncommon form is mast cell tumor of the intestines. Unlike mast cell tumors affecting the skin, which are visible as skin growths, visceral mast cell tumors generally produce vague symptoms, and the diagnosis is only reached after extensive testing.

When mast cell tumors of the skin are more advanced or aggressive, they may spread to the internal organs, producing a combination of both cutaneous and visceral mast cell tumors. For this reason, if your veterinarian identifies a skin growth as being a mast cell tumor, he/she may recommend assessing the internal organs further to screen for internal mast cell tumors.

Most dogs and cats developing mast cell tumors are middle-aged or older pets. Boxers and Boston terriers are more likely than average to develop mast cell tumors in general, and Siamese cats are predisposed to mast cell tumors of the skin.

Mast cells, the predominant type of cell in this tumor, contain substances, such as histamine, that cause some of the specific problems associated with these tumors. These substances, called vasoactive agents, cause tissue damage by making blood vessels (like veins and capillaries) dilate and become "leaky." When the substances are released from mast cell tumors, which happens either spontaneously or when a mast cell tumor is firmly touched or handled, the affected tissues becomes swollen and warm within a few minutes-the classic inflammatory response. This reaction may occur directly around the tumor in cases of mast cell tumors of the skin. Alternatively, however, if large amounts of these substances are released into the bloodstream, blood vessels may dilate in the entire body, resulting in extremely low blood pressure and shock. This is similar to the response seen in severe allergic and hypersensitivity (anaphylactic) reactions. Therefore, a skin growth on a dog or cat should not be handled unnecessarily until it has been brought to veterinary attention and properly evaluated.

**Clinical Signs:** Frequently mast cell tumors of the skin will be noted as small lumps that have not changed for a long time, but which suddenly become larger. Sometimes the lump will become red and inflamed. It is worth remembering that many, many other types of skin growths (be they malignant or benign) can behave this way, too, and that an enlarging skin growth is a good reason for a veterinary visit but no reason for premature concern. Less commonly, when a mast cell tumor affects the internal organs, the main symptom may be vomiting (because of the vasoactive chemicals the tumors release) or vague signs of not feeling well such as decrease or loss of appetite or loss of energy/sluggishness.

**Diagnosis:** Mast cell tumor of the skin can be diagnosed by a fine-needle aspirate. With this minimally-invasive technique, a very thin needle is inserted into the growth to remove some cells from the tumor tissue for microscopic examination. The procedure is not painful, and no anesthetic is generally required, since the needle is of the same small size as the needle for a local anesthetic. The drawback of such a minimally invasive and simple procedure is that it often does not yield enough of a tissue specimen for the laboratory to give an answer, and in those cases, a surgical biopsy may be necessary. It is worth knowing that a common aftereffect of fine-needle aspiration of mast cell tumors is external oozing of blood from the site of aspiration for several minutes to 1 hour, which may be messy but is not a cause for alarm unless it persists or worsens.

When visceral mast cell tumors are suspected, radiographs (x-rays) or ultrasound examinations may be used. Sometimes blood tests can aid in the diagnosis since mast cells may be found circulating in the blood. If the decision is made to remove a mast cell tumor, a sample, or biopsy, will be taken during the surgery to remove the tumor and send to a laboratory to confirm the diagnosis of mast cell tumor and to determine whether the tumor is more likely to be malignant (reappears or spreads) or benign (removal is curative). This information helps determine if treatment in addition to surgery is needed.

## Living with the Diagnosis

The outlook (prognosis) for pets with mast cell tumor of the skin depends upon the stage of the tumor (see Diagnosis section). Mast cell tumors that are malignant may spread to multiple areas of the body and cause symptoms such as vomiting that continues to get worse over several weeks time. However, patients with mast cell tumors may be cured just by removal of the mast cell tumor if it is both benign and operable (in other words, can be removed completely without harming vital organs).

Be alert for new skin masses and have them checked by your veterinarian as soon as possible. Some pets can develop multiple mast cell tumors, so a thorough evaluation is necessary.

The prognosis for visceral mast cell tumors depends upon the affected organ and whether the affected pet is a dog or cat. Cats with mast cell tumor of the spleen often survive 1 year or more after removal of the spleen. Pets with mast cells in the bloodstream or an intestinal mast cell tumor usually have short survival times of only a few months, but as with any illness, there is a great deal of variation from one individual to another and specific predictions of survival can never be made.

## TREATMENT

The mainstay of treatment is surgical removal of the tumor. The pet will be pretreated with antihistamines to prevent the dangerous effects of possible histamine release when the tumor is handled in surgery. The surgeon will try to remove a large amount of tissue around the tumor to reduce chances of missing any microscopic segments of involved tissue. Biopsies of lymph nodes or internal organs may also be taken. The entire spleen is removed in cats with mast cell tumor of the spleen, but the spleen is not essential to life. For skin tumors, radiation treatment may be advised in addition to surgical removal, especially if the mass was in a location where surrounding tissue could not be easily removed.

Cats that have mast cells circulating in their blood or pets whose tumors cannot be controlled by surgery alone may be given prednisone (similar to cortisone) tablets (pills) by mouth as home treatment. Chemotherapy drugs are sometimes used along with prednisone to prolong the life of pets with a tumor that could not be adequately removed or that had spread to the lymph nodes. Histamine-blocking agents may also be prescribed to control side effects associated with histamine release from mast cell tumors.

## DOs

- Give medicine(s) exactly as directed.
- Check your pet's surgical incision daily for redness, swelling, or discharge if surgical biopsy and/or mast cell tumor removal was performed.
- Check your pet's skin for new growths and bring them to veterinary attention should they occur.
- Understand that it will be necessary to perform tests such as a fine-needle aspirate and sometimes a surgical biopsy to determine whether a skin growth is a mast cell tumor.
- Realize that many different types of skin growths occur in dogs and cats and that finding a new skin growth should **not** immediately be interpreted as the presence of cancer. Consult your veterinarian.

## DON'Ts

- Do not handle or press upon any tumor suspected to be a mast cell tumor; damage to the cells could cause histamine release with serious consequences.
- After a surgery: do not bathe your pet until the sutures have been removed, do not let your pet lick or chew the incision, and do not allow your pet to exercise vigorously until sutures are removed.

## When to Call Your Veterinarian

- If there is swelling at or drainage from the surgical incision or if your pet is licking the incision.
- If you notice new skin lumps, have them evaluated immediately. Some pets develop multiple mast cell tumors.

## Signs to Watch For

- Vomiting or sudden weakness may occur due to histamine release from a tumor. If this occurs and a mast

cell tumor was diagnosed at any time in your pet's past, notify your veterinarian. Additional medications and/or testing may be worthwhile.

## **Routine Follow-Up**

- Have surgical sutures removed in 10 to 14 days if necessary.
- If your pet's biopsy shows an aggressive mast cell tumor, regular follow-up examinations are recommended to check for reoccurrence of the tumor.