CANINE MAST CELL TUMORS

What you need to know as a pet parent

PetCure ONCOLOGY

Mast cell tumors (MCTs) are common in dogs. They can be very invasive and often regrow after surgical removal; they may also spread (metastasize). Some MCTs release histamine, which can cause swelling and bruising around the tumor. MCTs can be treated successfully if diagnosed early.

Most common MCT tumor types:
MCTs are usually a skin cancer in dogs, but they can spread to lymph nodes, internal organs and bone marrow.

Pets at risk:
MCTs can occur in any dog regardless of breed or sex. However, some breeds including Boxers, Boston Terriers, Golden Retrievers, and Schnauzers are at higher risk.

COMMON SYMPTOMS

Varies by rate of growth, location, and extent

- **Mass lesion involving the skin or subcutaneous tissue at any body location:** Individual tumor appearance is highly variable —
  - Some lesions are ulcerated, others are covered with hair
  - Redness, bruising and fluid buildup (edema) can occur, and may worsen with manipulation or scratching
  - Tumors can fluctuate up and down in size
- **Enlarged lymph nodes:** Near areas of tumor involvement
- **Gastrointestinal symptoms:** Loss of appetite, vomiting or diarrhea

DIAGNOSING & TESTING

- **Blood and urine samples:** Assess organ function and identify concurrent diseases
- **Abdominal ultrasound:** Assesses abdominal organs for evidence of MCT spread
- **Fine needle aspirates:** Used to diagnose MCT spread, especially to skin, lymph nodes, and internal organs
- **Chest radiographs:** Evaluate heart and lungs before anesthesia, and check for concurrent diseases including cancer spread
- **Tissue biopsy:** Allows microscopic evaluation of the primary MCT, providing confirmation of diagnosis and a tumor grade (low or high)[1]
- **CT scan:** Identifies the precise location and size of MCTs for detailed surgery or radiation planning

TREATMENT OPTIONS

EVERY CANCER IS DIFFERENT.
ASK YOUR VETERINARIAN ABOUT HOW THESE OPTIONS APPLY TO YOUR PET.

Surgery is the ideal treatment for MCTs, as long as the cancer can be completely removed and it has not already spread.[2]

Conventional radiation therapy is often used after surgery if some cancer cells remain. A typical treatment course for MCT usually involves approximately 15 separate treatment sessions under anesthesia.[3]

Stereotactic radiation (SRS/SRT) is an advanced form of radiation therapy that is widely used in human oncology, and is now available for pets:

- ***Less Invasive:*** *Surgery may not be needed*
- ***Spares Healthy Tissue:*** *Tumor is targeted through precise radiation delivery with sub-millimeter accuracy*
- ***Fewer Side Effects:*** *Less toxicity and faster recovery compared to conventional radiation therapy*
- ***Fewer treatments:*** *1-3 treatments vs. 15-21 with conventional radiation therapy*
- ***PetCure Oncology's radiation oncologists are experienced using SRS/SRT to treat dogs with MCTs***

Chemotherapy is used to treat MCTs that have already spread, or have a high risk for spread. A variety of treatment protocols are available incorporating multiple drugs as well as corticosteroids.[4,5]

Palliative therapies such as antihistamines and pain killers can help maintain quality of life but do not slow progression of the MCT.

PROGNOSIS FOR CANINE MCT

- **Localized low grade MCTs can often be cured if:**
  - They are completely removed with surgery[2]
  - They are incompletely removed with surgery but also receive conventional radiation therapy[3]
- **MCTs that have spread to local lymph nodes can still have a good prognosis after treatment including surgery, radiation, and chemotherapy**
  - Survival times over 5 years are reported[6]
- **High grade MCTs or MCTs that have spread to several sites have a guarded prognosis[1]**
  - Treatment may include chemotherapy, radiation therapy, and surgery
  - Expected survival may only be a few months, even with treatment

1. Kiupel M, Webster JD, Bailey KD et al. Proposal of a 2-tier histologic grading system for canine cutaneous mast cell tumors to more accurately predict biological behavior. Vet Pathol 2011;48:147-155.
2. Seguin B, Leibman N, Bregazzi VS et al. Clinical outcome of dogs with grade-II mast cell tumors treatedwith surgery alone: 55 cases (1996-1999). J Am Vet Med Assoc 2001;218:1120-1123.
3. Al Sarraf R, Mauldin GN, Patnaik AK et al. A prospective study of radiation therapy for the treatment of grade 2 mast cell tumors in 32 dogs. J Vet Intern Med 1996;10:376-378.
4. Rassnick KM, Moore AS, Williams LE et al. Treatment of canine mast cell tumors with CCNU (lomustine). J Vet Intern Med 1999;13:601-605.
5. London CA, Malpas PB, Wood-Follis SL et al. Multi-center, placebo-controlled, double-blinded, randomized study of oral toceranib phosphate (SU11654), a receptor tyrosine kinase inhibitor, for the treatment of dogs with recurrent (either local or distant) mast cell tumor following surgical excision. Clin Cancer Res 2009;15:3856-3865.
6. Lejeune A, Skorupski K, Frazier S et al. Aggressive local therapy combined with systemic chemotherapy provides long-term control in grade II stage 2 canine mast cell tumour: 21 cases (1999-2012). Vet Comp Oncol 2015;13:267-280.

What to expect at your oncology consultation

You have been referred to a PetCure Oncology-affiliated hospital because your veterinarian suspects or has diagnosed your pet with cancer and wants you to be in the very best hands.

LET US GUIDE YOU THROUGH THE NEXT STEPS:

- Schedule an initial consult with a board-certified radiation oncologist or medical oncologist by calling the number provided to you by your veterinarian.
- Just as in human medicine, confirming the cancer diagnosis comes first. If cancer is found, we will determine its type, size, location, and stage. This may involve additional testing.
- With a clear understanding of your pet's cancer, we will present the best treatment options and help you make an informed decision.
- If you elect to move forward with treatment, your pet's first appointment will be scheduled as soon as possible.

IF STEREOTACTIC RADIATION (SRS/SRT) IS THE CHOSEN TREATMENT:

- A custom-made immobilizer will be created for your dog to ensure precise positioning.
- A board-certified radiation oncologist will use data from a treatment-planning CT scan to create the best radiation treatment plan for your pet.
  - This plan will be reviewed by a second board-certified radiation oncologist.
- All treatments are delivered in 1-3 sessions.
- A follow-up appointment should be scheduled 2 weeks after radiation therapy is completed. Recommendations for additional appointments will be made at that time.

Note about fasting: Since the treatment-planning CT and treatment sessions require anesthesia, your dog must be fasted prior to these appointments.

POSSIBLE SIDE EFFECTS FROM SRS/SRT FOR MAST CELL TUMORS IN DOGS

Normal side effects:

- Loss or discoloration of fur and irritated or peeling skin in the treatment field

Post treatment clinical signs that warrant a call to your vet:

- Lethargy or decreased appetite
- Swelling or bruising associated with the MCT
- Nausea or vomiting

Side effects that warrant an immediate call to your local PetCure-affiliated center:

- Difficulty breathing
- Weakness or inability to stand
- Complete refusal of food and water
- Repeated vomiting or diarrhea, especially if dark or black in color

Affiliated PetCure clinicians and your local veterinarian are here to help manage any side effects that may occur. If in doubt about side effects, call your local affiliated PetCure Oncology center.

If you have to take your pet to the emergency room, let us know so we can coordinate with the emergency veterinarian to ensure the best possible care.

WITH SUPPORT FROM PETCURE ONCOLOGY, YOU WILL BENEFIT FROM:

- Unrivaled Treatment and Delivery
- Industry Leading Clinical Research
- Human-Based Quality Control
- Barrier-Free Collaboration
- Proactive Education
- Five-Star Service
- Pioneering Innovation

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