Mast Cell Tumors in General Practice: The Highs and Lows of Canine Cutaneous Mast Cell Tumors

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Mast cell tumors (MCT) are the most common cutaneous tumor in the dog. A primary care veterinarian often diagnoses MCT, and many can have excellent outcomes even without referral to a medical oncologist. However, there is a large spectrum of behaviors for these tumors. This includes the small MCT that will be cured with a straight-forward surgery, all the way to the larger or more aggressive MCT that lead to life-limiting disease in just a few months. It is important to understand how to approach these tumors so that clients can be well-informed as to how best to move forward once a diagnosis of MCT is made.

Overview of Canine Cutaneous Mast Cell Tumors

Mast cell tumors are primarily found in older dogs but can be seen at any age. They can take on any appearance. However, many will be small, hairless cutaneous masses on the trunk (50%), limbs (40%), and head or neck (10%). The most important prognostic indicator for MCT is the grade, which requires a biopsy to obtain. Fortunately, low-grade MCT is most common, making up 59% to 81% of all cases. As the work-up, surgical approach, and prognosis changes with grade, it can be difficult to figure out how best to navigate MCT once a diagnosis is made via fine needle aspirate. The problem most clinicians run into is that a biopsy is required to determine grade; however, if we were to know the grade in advance, we may approach these cases differently.

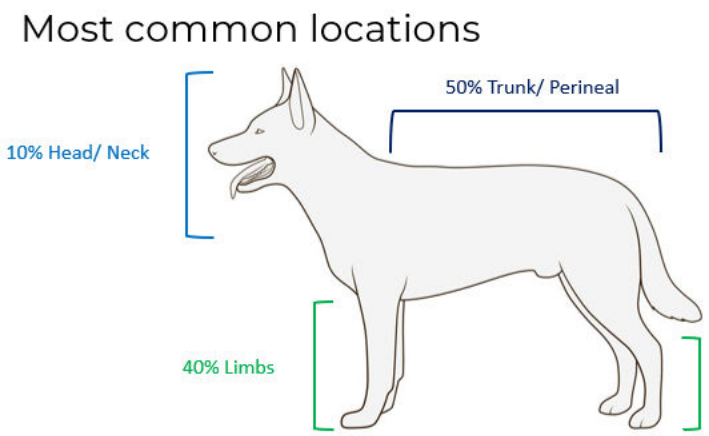
Low-Grade vs High-Grade Characteristics

Certain characteristics are used to predict grade in MCT. Small, slowly growing, non-ulcerated, cutaneous

tumors are often low grade. Large, rapidly growing, ulcerated tumors found at mucocutaneous junctions (including head/ neck) are typically high grade. Dogs with no systemic signs at the time of MCT diagnosis are more likely to have low-grade tumors, while dogs who feel sick at the time of diagnosis (lethargy, weight loss, stomach upset) are more likely to have high-grade tumors. Brachycephalic breeds typically develop low-grade MCT, while Shar-Peis almost always develop high-grade MCT. Multiple cutaneous tumors are not considered a high-grade characteristic as each of these tumors should be considered its own individual tumor.

Staging

When there is suspicion for a tumor being high grade based on characteristics, staging is recommended, given the high rate of metastasis for high grade tumors (up to 95%). Staging is not typically recommended for low-grade MCT, as the risk of metastasis is much lower (2% to 16 %). The most common area for metastasis for MCT is the regional lymph node (RLN). Therefore, it is important to sample the RLN if it is accessible, especially if it is abnormal. Knowing if there is spread to an RLN helps with prognosis and treatment recommendations. Dogs with MCT that have spread to RLN tend to do better if that lymph node is removed at the time of surgery than those who have metastatic lymph nodes left untreated. The second most common location that MCT spread to are the spleen and/or liver. It is important to note that ultrasound is neither sensitive nor specific at determining if metastasis to the spleen and/or liver is present. Therefore, sampling (fine needle aspirate) is required to determine whether metastasis is present. MCT very rarely spread to the lungs or other regions within the chest. Therefore, chest x-rays are not considered standard-of-care for staging for MCT unless there is a specific concern for a particular patient.



Treatment of Low-Grade MCT

Surgery should be done to remove presumed low-grade MCT, and the mass should be submitted for histopathology to confirm the grade. As mentioned, any abnormal or confirmed metastatic RLN should also be removed during surgery. For tumors that are not amenable to surgery, or for situations where a dog has had multiple cutaneous tumors and the client no longer wishes to pursue surgery, steroids (either systemic/ prednisone or local/ triamcinolone) can be considered. While some tumors will go into a complete remission from steroid therapy, others may only partially respond or remain stable in size. Steroids can also be used to help decrease the size of tumors prior to surgical excision.

Treatment of High-Grade MCT

Given the high rate of recurrence (50%) or metastasis (55% to 95%), the majority of high-grade MCT will lead to life-limiting complications within one year of diagnosis. Therefore, consultation with a medical oncologist to discuss a dog's particular prognosis and chemotherapy is recommended. Before consultation,

supportive medications can be used. These medications include H1 antagonists (ex. cetirizine), H2 antagonists (ex. famotidine), PPIs (ex. omeprazole), and prednisone (cytotoxic to mast cells).

Conclusion

Given the broad spectrum of behavior of canine cutaneous mast cell tumors, diagnosing them can be a stressful experience for both the clinician and the client. By being as prepared as possible and understanding what features to look out for and when to recommend further diagnostics or referral, these tumors can become more approachable within the scope of general practice. In general, the prognosis for pyrethrin toxicity is excellent as long as appropriate medical intervention is performed. Cats are typically well enough to be discharged within 24 to 96 hours from presentation unless there is systemic illness or brain injury. Without treatment, fatal outcomes are possible with highly concentrated pyrethroids.

References

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