

Current Concepts in Oncologic Surgery in Small Animals

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KEYWORDS

- Mast cell tumors • Soft tissue sarcomas • Injection site sarcomas • Surgical margins
- Surgical oncology • Metronomic chemotherapy

KEY POINTS

- Normal-appearing liver and spleen on ultrasound should still be aspirated.
- A sentinel lymph node is the first lymph node to receive drainage from a tumor; it can reliably be determined with scintigraphy.
- Best recommendations for mast cell tumors (MCTs) margins are difficult to determine. A proportional margin allows surgeons to tailor the margin to patients, and previously recommended margins may be larger than necessary.
- Recently described surgical margins for feline injection site sarcomas are 5 cm lateral and 2 fascial planes deep to the tumor.

MAST CELL TUMORS

Introduction

MCTs are a common clinical diagnosis and are one of the most often encountered cutaneous neoplasms of dogs, ranging from 7% to 21%.¹⁻⁴ Several important advancements regarding the staging, treatment, and histologic grading of MCTs have been made and are summarized. Staging is valuable to clinicians because this information has an impact on the pre- and postoperative management of patients. Staging results may also have an impact on the surgical procedure performed on an animal and help prepare the owner for adjuvant therapy that may follow the surgical treatment.

Staging

Introduction

Procedures recommended and organs evaluated in the staging of MCTs are somewhat inconsistent but typically involve sampling the liver, spleen, bone marrow and draining the lymph node, if not other lymph nodes.⁵ Staging decisions are

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frequently based on tumor grade because grade 1 MCTs are unlikely to metastasize and dogs are not likely to need full staging, whereas grade 3 MCTs are likely to metastasize and dogs would benefit from staging. The behavior of grade 2 MCT's can be difficult to predict. Histologic features that have been associated with more aggressive behavior are mitotic index, tumor size, and lymph node status.⁶

Technique

Ultrasonographic appearance of the liver and spleen should be interpreted with caution. A study evaluating the correlation of ultrasound findings to cytology evaluated 19 dogs⁵; 10 had grade 2 disease and 9 had grade 3 disease. Sonographic appearance of the spleen and liver was judged normal in 56% and 89%, respectively. All splenic and 14 of 19 liver samples were of diagnostic quality. Splenic and liver involvement was detected in 37% and 16%, respectively. All dogs (3/3) with liver involvement had splenic involvement. Ultrasonographic abnormalities were found in 43% of spleens evaluated and no livers in dogs with cytologic evidence of MCT. Another study similarly recommended aspiration of the liver and spleen despite their appearance. These findings highlight the importance of fine-needle aspiration and not relying on appearance alone.⁷

Bone Marrow

Bone marrow involvement with MCTs generally results in a poor clinical outcome. A study evaluated 14 dogs with bone marrow involvement and found a median survival time (MST) of 43 days.⁸ Dogs with bone marrow involvement in this study did not benefit from treatment with lomustine.

Lymph Node Status

Introduction

As stated previously, evaluation of the local lymph node is an important part of clinical staging for determining status of the disease and has a significant impact on prognosis and patient survival. A complete discussion of lymphology is beyond the context of this article but some basic understanding of lymphatic drainage and lymphocentrums is important to the understanding of lymph node staging. A lymphocentrum is a lymph node or group of lymph nodes in the same region that receives afferent lymphatic flow from the same approximate region in most species.⁹

Technique

Generally, the regional lymph node draining a specific body site is evaluated for MCT staging. A study evaluated the usefulness of complete staging in canine MCTs when there was no evidence of MCT spread to the local lymph node.¹⁰ This study evaluated staging data from 220 dogs. The tumor distribution was based on the Patnaik system and included 24 grade 1, 152 grade 2, and 20 grade 3 MCTs. Some MCTs were additionally classified as having features of 2 grade categories. Some lymph nodes were not palpable or internal and not able to be sampled, leaving 119 dogs with sampled lymph nodes. Distant metastasis (spleen, liver, skin, or other lymph nodes) was detected in 15% whereas 31% had local lymph node metastasis. MCTs of the head were more likely to metastasize to the local lymph node and to distant sites. From this study it was determined that distant metastasis did not develop for dogs with a negative local lymph node. Of note, 42% of animals with lymph node metastasis did not develop distant spread or die as a result of the MCT. They also concluded thoracic radiography to have no value in the clinical staging of MCTs, although they may benefit the anesthetic evaluation and detection of comorbid conditions.

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