What is a Mast Cell Tumor?

Mast cell tumor (MCT) is the most common skin cancer of dogs, though can less commonly originate in other locations, such as the spleen, liver, and bone marrow. It involves an overgrowth of mast cells, which are part of the body's immune system. They can be triggered to release several chemicals that are important in the body's defenses. When they become cancerous, however, they can release large amounts of these chemicals inappropriately, causing irritation, gastrointestinal upset, and other side effects. Like many other cancers, these tumors can metastasize to other skin sites, lymph nodes, and distant organs (especially spleen or liver). These tumors are assigned various grades that correspond to their aggressiveness and thus the likelihood that they will invade other tissues.

Depending on the grade of the tumor, we may recommend initial staging tests (lymph node aspirate, chest x-rays, and abdominal ultrasound) to look for any evidence of cancer spread. Mast cell tumors generally do not spread to the lungs, though x-rays would be recommended to evaluate the heart and lungs prior to a second surgery and overall health. An abdominal ultrasound can be performed to look for any evidence of cancer spread to the liver or spleen, which are one of the more common places for mast cell tumors to spread. Samples may need to be taken from the liver or spleen to determine if there is cancer present or not.

What are the Treatment Options?

Surgery is the cornerstone of treatment for most mast cell tumors. Biopsy results allow us to determine grade and surgical margins. With this information we are then able to best decide on further treatment if needed. When tumor cells are left behind after surgery, or margins are extremely close, we typically recommend follow-up treatment, whether a second surgery, radiation therapy, chemotherapy, or some combination thereof.

Radiation Therapy - When a second surgery is not feasible or there is a large tumor that cannot be removed, the next best option for local control is radiation therapy.

Chemotherapy - Traditional chemotherapy may be used after surgery if margins are not complete, or with tumors that have an increased likelihood of spreading, such as grade III MCTs. Dogs tend to tolerate chemotherapy better than humans, with the most common side effects being gastrointestinal upset and suppression of the immune system. Commonly used for treatment of MCTs are vinblastine, CCNU (lomustine), Palladia™, and steroids. We check a complete blood count (CBC) before each treatment to make sure it is safe to give chemotherapy. With more aggressive mast cell tumors, we also recommend rechecking an abdominal ultrasound at the beginning, midpoint, and again when the protocol is finished to monitor for any evidence of cancer spread. Other chemotherapy may also be discussed depending on the grade of the tumor.

Electrochemotherapy (ECT) – ECT is administered by injecting chemotherapy either intravenously or into the mass/scarline. The goal is to control the tumor at the site (locally) with minimal side effects to the rest of the body. It is an alternative to radiation therapy to help control incompletely excised or tumors that cannot be removed.

Other recommended medications - Also, with higher grade mast cell tumors or presence of cancer spread, we recommend stomach protection (whether Prilosec (omeprazole) or Pepcid(famotidine)).

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