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Mast Cell Tumor

What is a Mast Cell Tumor?

Mast cell tumors (MCT) are the most common malignant skin tumors in dogs. Mast cells are normally involved in the body's inflammatory response. They contain granules (packets) that release histamine, heparin and other inciting agents of inflammation. Mast cell tumors have a varied appearance and can appear as a growth on the skin or a lump under the skin. MCTs can also occur within internal organs. Any pet can develop MCTs, however some breeds (Boxers and Boston Terriers) are prone to forming MCTs.

Diagnosis and Staging

A definitive diagnosis of MCT is made by obtaining a sample of the tumor and having it analyzed. A fine-needle aspirate (FNA) or a surgical biopsy will both yield a specimen for evaluation. A FNA is simply using a vaccine-sized needle and syringe to aspirate (suck up) cells from a mass. The cells are then sprayed on a slide, allowed to dry, stained, and examined under a microscope for the presence of mast cells. A FNA can only determine if a MCT is present or not. A surgical biopsy is a larger, intact piece of tissue that is specially prepared and examined by a pathologist. In addition to diagnosing MCT, a surgical biopsy will provide the histological grade of the tumor. This is an important factor in determining the degree of malignancy, the amount of surgery required to remove the mass, and ultimately the prognosis. MCT are graded based on the mitotic index (how quickly cells reproduce), the lower the number, the more optimistic the outcome.

Clinical staging is often needed to help determine whether or not the tumor has metastasized (spread to other parts of the body). Staging includes blood work, chest x-rays, abdominal ultrasound, and laboratory analysis of a surgical biopsy.

Treatment

Treatment options depend on tumor location, grade, and clinical stage. Complete surgical excision can be curative and is the treatment of choice with lower grade MCTs. The tumor is removed along with a 1-3cm³ of normal tissue surrounding the mass to minimize the chance of leaving tumor cells behind. The tumor and surrounding tissues (margin) are examined by a pathologist who will grade the tumor and determine if the surgical margin was adequate to remove all of the tumor cells. When an initial attempt to remove the tumor is unsuccessful, a second, deeper and wider surgical resection can be attempted. In situations where complete surgical removal is not feasible from the onset, simple surgical removal of just the tumor followed by radiation or chemotherapy is another option. Treating with radiation or chemotherapy alone is a palliative measure; meaning it can reduce clinical signs for a while and make the patient more comfortable. Regardless of the treatment elected, regular follow-up visits with a veterinarian are recommended to monitor for signs of tumor recurrence.