



## **CANINE MAMMARY GLAND TUMORS**

Mammary gland tumors are common in the older female dog. Approximately 50% of mammary gland tumors are benign and the other half are malignant (most commonly carcinomas). The development of mammary gland tumors is found to be hormone dependent in dogs. Therefore, the risk for developing these tumors is greatly reduced with early spaying. Spaying after two years of age or more than three heat cycles does not reduce the risk for malignant tumors; however, the spaying of intact dogs is recommended at the time of tumor removal.

### **How are mammary gland tumors diagnosed?**

Most dogs will present for a firm mass or swelling in the area of one or more mammary glands. Tumors may be firmly attached to the underlying muscles or freely moveable. Other tumor types which may be present in the mammary gland region can be ruled out with a fine needle aspirate. Once a mammary gland tumor is identified, chest x-rays and evaluation of local lymph nodes is performed to look for any potential spread. An abdominal ultrasound may also be performed to evaluate for any spread to internal organs and lymph nodes. Routine blood work is always needed to evaluate your pet's overall health status.

### **What is the treatment?**

#### Surgery

Surgery remains the treatment of choice for all dogs with mammary gland tumors. Single affected glands may be removed or more aggressive regional mastectomy or chain mastectomy of one or both sides may be required for complete removal of the tumor(s). The type of surgery is dictated by the extent of disease. If the dog is intact, spaying is recommended at the time of mammary gland removal. If masses are small, have not invaded into surrounding structures, and the excision is complete, no further therapy may be needed. For tumors where surgery is unable to remove all of the tissue, or if blood vessels, lymphatics, or lymph nodes are invaded, additional therapy is needed.

#### Chemotherapy

Chemotherapy is warranted in cases where the tumor is found to be of a high grade nature or if the tumor has invaded into the blood vessel or lymphatic system. Numerous chemotherapy agents have been used with mammary gland tumors. These



include but are not limited to doxorubicin, cisplatin, and cytoxan. Hormonal therapy, such as Tamoxifen (anti-estrogen) has been tried with equivocal results.

#### Radiation therapy

Radiation therapy can be used in limited situations where surgery is unable to remove the majority of masses or if the area involved is too extensive for surgery. The role of radiation therapy has not been well defined in the literature.

#### **What is the prognosis?**

The prognosis for small, negative lymph node involvement, low grade tumors are very good. Benign tumors can be cured with surgery. Tumors with rapid growth, ill defined boundaries, those that are firmly fixed to the body wall, and those that are ulcerated generally have a poorer prognosis. Even those tumors with a poor prognosis treated with adjuvant therapy (chemotherapy) can have a survival time of approximately one year.