



**Veterinary Emergency
+ Referral Center**
of Hawaii

**Ettinger: Textbook of Veterinary Internal
Medicine, 7th Edition
Mammary Gland (Breast) Tumors in Dogs and Cats
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What are mammary gland tumors?

Mammary gland tumors are common in dogs and cats that are not spayed or in animals that were spayed. In dogs early spaying provides a strong protective effect; dogs spayed before their third heat cycle are much less likely to develop a mammary gland tumor than dogs spayed after their third heat cycle. Although the protective effect is not as large in cats, it is clear that early spaying is also of benefit to this species. Treatment with megestrol acetate is also linked to the development of mammary tumors in animals.

Mammary tumors are similar to breast tumors in people. Usually no symptoms occur other than finding a "lump" when petting your dog or cat. Uncommonly, mammary tumors can bleed or become infected. Because some of these tumors are malignant, they can spread to other parts of the body and cause illness (loss of appetite, weight loss, lethargy, etc.).

What are the symptoms of mammary gland tumors?

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What tests are needed?

The diagnosis of a mammary gland tumor relies primarily on evaluation of a biopsy. A safe rule of thumb regarding mammary gland tumors is that about 50% of these tumors are benign and 50% are malignant. Further, 50% of the malignant tumors in dogs can be cured with just surgery. Unfortunately, mammary gland tumors in cats are almost always malignant. In dogs and cats, the smaller the tumor is at the time of diagnosis the better the outcome.

Tests that may help your veterinarian define your pet's prognosis by checking for metastasis (spread of cancer) include the following:

- X-rays of the thorax and abdomen
- Abdominal ultrasound
- Biopsy of lymph nodes that drain the site of the tumor
- Fine needle aspirate of lymph nodes that drain the site of the tumor
- Blood work to evaluate overall health of pet

What treatment is needed?

All dogs with benign mammary tumors can be cured with surgery. As mentioned above, 50% of dogs with malignant mammary gland tumors can be cured with surgical removal of the mass. However, even if the tumor is completely removed with surgery, your dog may develop another mammary tumor in the future. For the 50% of dogs with malignant tumors that cannot be cured with surgery, chemotherapy may also be offered (see discussion below).

Factors that help your veterinarian decide whether your dog should be treated with chemotherapy rather than surgery alone include the following:

- The size of the tumor at the time of diagnosis
- Whether or not the tumor site is ulcerated
- If evidence exists of spread of the tumor to the lymph nodes, lungs, or other sites of the body
- Characteristics of the tumor on microscopic examination

Some drugs that are commonly used to treat dogs with malignant mammary gland tumors are piroxicam, doxorubicin, and cyclophosphamide. Piroxicam is an anti-inflammatory drug that also has anticancer activities. The main side effects of piroxicam include loss of appetite and vomiting secondary to stomach irritation. The side effects may be minimized by giving the medication with food. If your pet has a diminished appetite, vomiting, or a change in the consistency of stool while on piroxicam, discontinue the medication and contact your veterinarian. The other drugs listed are more traditional anticancer drugs (i.e., chemotherapy drugs).

Two equally important goals should be kept in mind when choosing chemotherapy to treat your pet:

1. Control the tumor for as long as possible
2. Maintain a good to excellent quality of life throughout the duration of treatment

The chemotherapy drugs used for dogs and cats are the same drugs used in people. Because maintaining a normal quality of life is a main goal, chemotherapy is used somewhat less aggressively than in human medicine. Also, dogs and cats seem to be more tolerant of chemotherapy than people. They do not usually have side effects as severe as those in people. However, because chemotherapy drugs affect rapidly dividing cells, side effects can occur in dogs and cats.

Two important sets of cells in the body naturally grow and divide rapidly. These are the following:

1. The cells that line the bone marrow
2. The cells that line the gastrointestinal tract

A complete blood count (CBC) should be performed immediately before and 7 to 10 days after your pet has chemotherapy. If the white blood cell count is low, chemotherapy will be delayed 4 to 7 days; the counts will come back up on their own. Rarely the white blood cell count may drop so low that your pet is at risk of developing an infection. In this situation, antibiotic therapy is

indicated. At home, you may notice that your pet has a decreased appetite for 2 to 3 days after chemotherapy. You may also notice that they have softer stool than 4 to 7 days after chemotherapy. If you feel that vomiting or diarrhea is severe, contact your veterinarian. Medication may be used to help minimize or control these side effects.