



Mammary Tumors

Associated Terms:

Breast Cancer, Radical Mastectomy, Mastectomy, Mammectomy, Mammary Adenocarcinoma



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Your ACVS board-certified veterinary surgeon completed a three-year residency program, met specific training and caseload requirements, performed research and had research published. This process was supervised by ACVS Diplomates, ensuring consistency in training and adherence to high standards. After completing the residency program, the individual passed a rigorous examination. Only then did your veterinary surgeon earn the title of ACVS Diplomate.

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Mammary (or breast) tumors are common in female dogs, but rare in male dogs and cats. Surgical removal is recommended for most mammary tumors. Chemotherapy may be required following surgery in some cases. The prognosis is good following surgical resection for most mammary tumors in female dogs, but the prognosis is worse for certain tumors in dogs and all mammary tumors in cats.

Mammary tumors are more **common in female dogs that are either not spayed or were spayed after 2 years of age**. The risk of a dog developing a mammary tumor is 0.5% if spayed before their first heat (approximately 6 months of age), 8% after their first heat, and 26% after their second heat. Cats spayed before 6 months of age have a 7-times reduced risk of developing mammary cancer and **spaying at any age reduces the risk of mammary tumors** by 40% to 60% in cats.

More than a quarter of unspayed female dogs will develop a mammary tumor during their lifetime. The risk is much lower for spayed female dogs, male dogs, and cats of either gender. In female dogs, 50% of mammary tumors are benign and 50% are malignant. However, **few of the malignant mammary tumors are fatal**. In contrast, over 85% of mammary tumors in cats are malignant and most of these have an aggressive biologic behavior (i.e., mammary tumors in cats tend to be locally invasive and spread elsewhere in the body).

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A palpable mass underneath the skin of the abdomen is the most common findings in dogs and cats with mammary tumors (Figure 1). However, other signs and symptoms include discharge from a mammary gland, ulceration of the skin over a gland, painful, swollen breasts (Figure 2), inappetence, weight loss, and generalized weakness.



Figure 1. A dog with a mammary tumor just before surgery. The tumor is large and firm.



Figure 2. A dog with mammary carcinoma. The overlying skin is ulcerated and painful. As a result, this dog is lethargic and unwilling to eat.

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A good general physical exam is needed to find the location, size, and character of all the mammary masses and assess local lymph node enlargement. Other procedures also include:

- Bloodwork: blood count, chemistry, bleeding profile
- Abdominal ultrasound and chest x-rays: check for cancer spreading in the body
- Aspiration: a needle used to sample local lymph nodes to look for cancer cells, or of the mammary mass to distinguish it from other skin tumors
- A biopsy may be indication to rule out inflammatory mammary carcinoma, as surgery is not recommended for these tumors

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Further consultation with your primary care veterinarian may result in a referral to an ACVS board-certified veterinary surgeon to fully explore your options.

- The type of surgery depends on the size, location, and number of mammary tumors. In general, surgery is conservative for dogs with mammary tumors and involves removal of either the mass alone or the affected mammary gland. However, in cats, more aggressive surgery is recommended with removal of one or preferably both mammary chains (Figure 3).
- The draining lymph node should also be resected in cats, if possible, to assess for evidence of the cancer spreading.
- The role of spaying female dogs with mammary tumors is controversial. The majority of studies have shown no beneficial effect of spaying in preventing the development of new mammary tumors or influencing the aggressiveness or metastatic potential of existing mammary tumors. However, spaying at the time of mammary tumor resection may be recommended by your veterinary surgeon as it may have a beneficial effect in dogs with mammary tumors (based on recent studies) and may prevent unrelated diseases, such as [pyometra](#).
- The role of chemotherapy in cats and dogs with malignant mammary tumors has not been defined. For most mammary tumors in cats and dogs, hormonal therapy, immunotherapy, and radiation therapy have either not been investigated or are not beneficial.

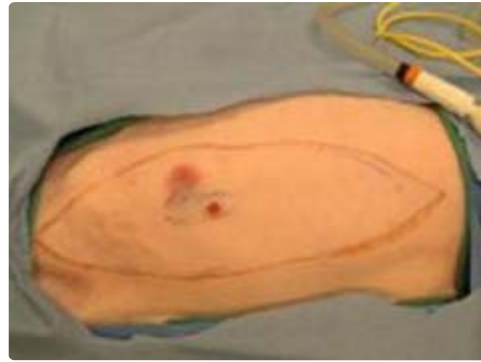


Figure 3. The small, ulcerated lesion is the mammary tumor but the marked oval around this lesion is the actual size of the tumor. Because this is a cat, aggressive surgery is being performed with removal of one entire mammary chain.

Surgery is not recommended for dogs with inflammatory mammary carcinoma because it does not improve survival rate. Unfortunately, an effective treatment has not been discovered. Radiation therapy in combination with a non-steroidal anti-inflammatory drug has been shown to provide the most effective pain relief in dogs, but the prognosis remains poor.

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Most pets are discharged 1-5 days after surgery, depending on their extent of surgery and their comfort. They are usually returned for re-check and removal of skin sutures or staples (if present). Pain can be well-controlled with owner-administered medications.

Restrictions following surgery usually are:

- Restrictive collar for 10-14 days after surgery to prevent the natural tendency of pets to lick and chew at a wound.
- Limited and restricted activity is indicated for about 2 weeks to allow recovery and incision healing.
- Bandage care may also be required if one is applied.

Postoperative complications can include:

- Incision infection
- Incision opening or breakdown, which is more common in the mammary glands near the back legs
- Local recurrence of the tumor or spread of the cancer that was not detected at the time of surgery

If the mammary tumor is malignant, the surgical site and regional lymph nodes should be checked for local tumor recurrence and metastasis, respectively, every 3 months for the first 12 months after surgery and then every 6 months thereafter. **Abdominal ultrasound and chest radiographs are also recommended every 6 months** to assess for evidence of metastatic disease.

In dogs, there are a number of factors that influence the prognosis following surgery. These prognostic factors include tumor size, clinical stage, histologic diagnosis and grade, and various other histologic criteria. Benign tumors are cured by surgery, although the development of new mammary tumors (both benign and malignant) is possible. There is a **poorer prognosis with malignant mammary tumors** and it also depends on what type of cancer. In dogs, the size of malignant mammary tumors is an important consideration when determining prognosis, both for local tumor recurrence and survival time. The smaller the mass is at the time of surgery (3-5cm or smaller) the less likely it will recur, or metastasize elsewhere. **Dogs can live several years after complete removal of some malignant mammary tumors.** So once a mass is found, having surgery to remove it earlier is better.

The prognosis for cats with mammary tumors is guarded as mammary tumors tend to be more aggressive and metastatic in cats. Many of the prognostic factors used in dogs also apply to cats, although the extent of surgery is also important in cats. When the tumor is smaller (less than 3cm) and removed they can live a couple years, so early surgery is important. But the more aggressive the surgery is, their lifespan can also be tripled (3 years), versus just removing the small mass alone (less than a year).

Mammary tumors can be prevented by spaying before 6 months of age or before their first heat. Other factors that may reduce the incidence of mammary tumors include feeding a well-balanced diet and avoiding obesity and the administration of hormones (particularly progesterone or mixed estrogen-progesterone drugs).

This Animal Health Topic was written by and reviewed by Diplomates of the American College of Veterinary Surgeons. Any opinions stated in this article are not necessarily the official position of the American College of Veterinary Surgeons.

The American College of Veterinary Surgeons recommends contacting an ACVS board-certified veterinary surgeon or your general veterinarian for more information about this topic.

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