

# Mammary Gland Neoplasia

## ABOUT THE DIAGNOSIS

**Cause:** Dogs and cats of both sexes have breast tissue that lies as two series or “chains” of mammary glands along the midline of the belly and chest, with a nipple for each of the ten mammary glands. Like in people, it is possible for tumors to develop within these mammary glands in dogs and cats. These tumors may be benign (harmless) or malignant (cancerous).

The vast majority of mammary tumors that occur in dogs occur in females (99%) versus in males (1%), and mammary tumors are the most common tumor of female dogs. Spaying (also called neutering, ovariectomy, or having the uterus and ovaries surgically removed) of female dogs appears to provide a strong protective effect when performed at a young age. Dogs that are spayed before their first heat/estrus, which generally means before the age of 7 to 8 months, have a 99% reduction in the risk of mammary cancer compared to non-spayed dogs. If spayed before the second heat, there is a 92% reduction in risk, and if before the third heat a 74% reduction in risk. However, if they spay occurs after that the third heat cycle (at about 2 years of age), the risk is similar between spayed and non-spayed dogs. Therefore, it appears that female hormones are a strong influence on the development of these tumors.

If not removed early, approximately 35%–50% of mammary gland tumors in dogs are—or become—malignant and spread to other parts of the body (metastasize), most commonly to the lungs and lymph nodes. Once this has occurred, it is very difficult to remove the tumor tissue entirely. Therefore, as in human beings, if a lump is seen or felt in the area of the mammary tissue in a dog or cat, early assessment is essential to reducing the risk of cancerous spread. This is felt as a firm lump on the underside of the chest and belly of female dogs.

Cats develop mammary tumors less often than dogs. Mammary tumor development in cats is also hormone-related. In fact, nearly all mammary gland tumors in cats occur in females that have not been spayed. The majority of mammary tumors in cats are cancerous, and they spread (metastasize) to the lungs and lymph nodes. Cats spayed before 1 year of age have less than a 1% chance of developing these tumors.

**Symptoms:** Symptoms of mammary tumors include swelling, sores (ulceration), and/or masses on the underside of the chest or belly, namely where the mammary glands are found. If the disease is very advanced, other symptoms such as weakness, decreased appetite, weight loss, and/or breathing difficulty are possible, but these symptoms are vague and may be caused by other illnesses altogether.

**Diagnosis:** A suspicion usually first arises when either you (the pet’s caretaker and companion) or the veterinarian feels a nodule, lump, or growth on the chest or underbelly. However, there are many impostors for mammary tumors, including some processes as simple as the accumulation of normal fat within the breast tissue. Therefore, one or several tests can be used for helping to diagnose mammary gland tumors. Your veterinarian can discuss with you which tests are appropriate for your dog or cat. X-rays of the chest and abdomen can help to determine if metastasis has occurred. An ultrasound examination of the abdomen (belly) can give more specific information regarding the organs that are involved. To definitively diagnose the tumor(s), tissue biopsies of the area are taken under general anesthesia and sent to a laboratory where the tissues are

examined by specialists. To assess your pet’s overall health, which is required if surgery is performed, routine blood tests such as a complete blood count (CBC) and serum biochemistry profile and a urinalysis are necessary.

## LIVING WITH THE DIAGNOSIS

When a dog or cat is diagnosed with a mammary gland tumor, surgery is usually recommended. The intention is to remove as much of the tumor tissue as possible, in the hope that it is removed entirely before it becomes inoperable (as tumors enlarge, they can send tentacle-like projections to surrounding tissues) or spreads to other organs. The outlook (prognosis) depends on many factors including the size and location of tumor(s), whether metastasis has occurred, and the general health of the pet before surgery. The prognosis is better if metastasis has not occurred. Surgery is not helpful for a few types of mammary gland tumors. Your veterinarian can discuss these matters with you before treatment.

After surgery and once your pet is home from the hospital, it is important to give pain medication exactly as directed if any was prescribed, and to keep your dog or cat as comfortable as possible during the recovery period (usually several days to a week or so).

## TREATMENT

Surgery is performed to remove all of the affected tissue, if possible. The size, number, and location of the tumor(s) generally determine the amount of tissue and the number of the ten mammary glands that needs to be removed (mastectomy). Your veterinarian may recommend that an *ovariohysterectomy* be performed at the time of tumor removal to prevent diseases of the uterus and further hormone release by the ovaries. This is the same surgery as spaying/neutering. An ovariohysterectomy cannot prevent onset of mammary gland tumors unless performed at an early age (see above). *Chemotherapy*, *radiation therapy*, and *hormonal therapy* for mammary tumors are rarely recommended after surgery because they are not highly effective. Therefore, the cornerstone of success with mammary tumors in dogs and cats is prevention through spaying/neutering, and early identification and surgical removal when present.

After surgery, a bandage may be placed around the patient’s chest and/or abdomen to absorb any fluid discharge from the surgery site, to gently compress the surgical area, and to keep it as clean as possible. The bandage should be kept clean and dry at all times and should be snug, but not too tight to make breathing uncomfortable. The bandage typically will be changed as often as needed (at least daily) for the first several days after surgery. You should monitor the bandage for a foul smell or signs of increasing discomfort or pain around the area of the surgery, which could indicate an infection. If you notice any of these changes, or your dog or cat is not recovering to normal within 24 hours of surgery (or seems to be feeling gradually weaker or more sluggish, rather than more alert and returning back to normal during that period), you should contact your veterinarian to determine whether an immediate recheck is necessary.

A small drain may also be placed in the surgery site at the end of surgery to help evacuate fluid from the tissues under the skin, a normal process in healing. This drain is usually removed after several days.

## DOs

- Inform your veterinarian if your cat or dog has ever been diagnosed with a medical condition and is taking medication, because

past medical problems and current medications can alter the medications that a dog or cat can take concurrently.

- Give medication exactly as directed by your veterinarian, and if you are concerned about possible negative effects, discuss them with your veterinarian immediately rather than simply discontinuing the treatment.
- Do realize the similarities and differences between humans and pets regarding this condition: the importance of early detection and treatment is an important similarity, whereas the extent of mammary tissue (every dog and cat has ten mammary glands) and the very infrequent use of chemotherapy in veterinary patients are important differences.
- Do seek the opinion of a specialist if there is any doubt regarding diagnosis (Is it a mammary tumor or not?) and treatment. Specialists in this field are veterinarians who are certified as Diplomates of the American (or European) College of Veterinary Internal Medicine, Specialty of Oncology (directories: [www.acvim.org](http://www.acvim.org) or [www.vetspecialists.com](http://www.vetspecialists.com) and [www.ecvim-ca.org](http://www.ecvim-ca.org)).

### DON'Ts

- Do not delay contacting your veterinarian if you think you can feel a lump, swelling, or mass on your dog's or cat's mammary gland. Early detection and treatment can improve the prognosis.
- Don't confuse normal structures (like the nipples) for masses. If there is any uncertainty, be sure to note exactly what you feel and where; otherwise, during the appointment, it sometimes might be difficult for you to find the nodule or mass, especially if it is small.

### WHEN TO CALL YOUR VETERINARIAN

- If you cannot keep a scheduled appointment.
- If you are unable to give medication as directed.
- If your dog or cat is not improving after surgery.
- If the surgical site (where the stitches are) becomes increasingly red, swollen, painful, or discharging of fluid.

### SIGNS TO WATCH FOR

As a possible indicator of mammary tumors:

- At any stage: discoloration and/or bleeding on one or more mammary glands, swollen mammary gland(s), discrete tumors that you can feel or see.
- If advanced or during the postoperative recovery period (1 to 2 weeks after surgery): general signs of illness, including lethargy, weakness, decreased appetite, weight loss, and other behavior changes.

### ROUTINE FOLLOW-UP

- Patients diagnosed with malignant tumors should be examined by their veterinarian every few months for recurrence of the tumors or metastasis.
- Surgery is usually followed by suture removal (stitches removed) 10 to 14 days later.



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