

Mammary Tumors in Cats

These notes are provided to help you understand the diagnosis or possible diagnosis of cancer in your pet. For general information on cancer in pets ask for our handout "What is Cancer". Your veterinarian may suggest certain tests to help confirm or eliminate diagnosis, and to help assess treatment options and likely outcomes. Because individual situations and responses vary, and because cancers often behave unpredictably, science can only give us a guide. However, information and understanding about tumors and their treatment in animals is improving all the time.

We understand that this can be a very worrying time. If you have any questions please do not hesitate to ask us.

What is this tumor?

This is a tumor originating from cells of the mammary glands. In the cat, most mammary tumors are potentially or already malignant, so early surgical removal is important in preventing spread to other parts of the body (metastasis). A cat may have multiple tumors, sometimes of different types, within different mammary glands.

What do we know about the cause?

The reason why a particular pet may develop this, or any cancer, is not straightforward. Cancer is often the culmination of a series of circumstances that come together for the unfortunate individual.

"Sex hormones are the most important single risk factor for mammary tumors in cats."

Cancer is non-lethal genetic damage of cells (mutations in the DNA genome). Some cats have a genetic tendency to develop cancer and the risk increases with increasing age. However, sex hormones are the most important single risk factor for mammary tumors in cats. If the ovaries and uterus are removed by ovariectomy (spaying) at an early age, there will be less risk of these tumors developing. Conversely, giving a cat female sex hormones increases the incidence.



From: Dermatology by Ralf Mueller
Published by Teton NewMedia
With permission

Cancer induction is a multi-step process and the early, pre-cancerous stages, called hyperplasia (excessive growth) and dysplasia (abnormal growth), are due to hormonal disturbances. In cats, most such precancerous changes can progress to true cancers, which proliferate without purpose or function.

In some species of animal, viruses are important factors in inducing mammary cancer. Viruses have been found within these tumors in some cats but, as far as we are aware, they do not cause the tumors.

Why has my cat developed this cancer?

Some animals have a greater tendency (genetic susceptibility) to cancer. The more divisions a cell undergoes, the more probable is a mutation so cancer is more common in older animals. Mammary tumors begin their abnormal growth under the influence of hormones but if they progress to a malignant stage, removing the hormones does not affect the course of the tumor.

Are these common tumors?

"These are common tumors in female cats, mainly in middle aged to older animals."

These are common tumors in female cats, mainly in middle aged to older animals. Pre-cancerous hyperplasias and dysplasias account for 22% of mammary lumps, benign cancers for 0.9% and malignant cancers for 77%. The Siamese breed is three times more likely to develop mammary tumors than Domestic Short Haired cats. Persian cats also develop tumors frequently. Mammary tumors in cats are more common in Scandinavian countries because domestic cats are not commonly spayed and the female hormone progesterone is frequently used to prevent pregnancy.

Although most cats with these tumors are elderly, malignant tumors can occur in cats as young as two years of age. Mammary tumors are rare in male cats, but do occur.

How will this cancer affect my pet?

The most obvious effect is a lump or multiple lumps in the mammary glands. Some tumors produce secretion (clear, milky or bloodstained fluid which may be expressed from the teat). Benign tumors rarely ulcerate or bleed but ulceration of malignant tumors is not uncommon. Malignant tumors are often firmly attached to the surrounding structures with poorly demarcated edges. Large tumors may lose some of their blood supply, causing parts of them to degenerate and ulcerate. Large tumors may have physical effects by pressing into the surrounding tissues. Inflammation and secondary bacterial infection are possible, causing pain and general signs of illness.

If the cancer spreads (metastasizes) to the lungs, the cat may develop shortness of breath and difficulty breathing. Weight loss due to loss of body fat and muscle may occur in the later stages of malignant cancer. The immune system is often damaged, which allows cancers to develop and infections to persist.

How is mammary cancer diagnosed?

Your veterinarian will usually suspect the diagnosis of a mammary tumor based on its typical appearance and location. However, accurate diagnosis of the type and a prediction of how it will behave rely upon microscopic examination of tissue.

Cytology, the microscopic examination of cell samples, is not an accurate method of diagnosis for mammary tumors. Accurate diagnosis, prediction of behavior (prognosis) and a microscopic assessment of whether the tumor has been fully removed rely on microscopic examination of tissue samples (histopathology). Your veterinarian will send tissue samples to a specialized laboratory for assessment by a veterinary pathologist. Whenever a mammary tumor is submitted for assessment, the sample always needs to include the margins or edges of the lump. Examination of the whole lump, including the margins, will allow the pathologist to indicate whether the cancer has been completely removed.

"The sample always needs to include the margins or edges of the lump."

The histopathology report typically includes words that indicate whether a tumor is 'benign' (non-spreading, local growth) or 'malignant' (capable of spreading to other body sites). These, together with the origin or type of tumor, the grade (degree of resemblance to normal cells or 'differentiation') and stage (how large it is and extent of spread) indicate how the cancer is likely to behave.

What types of treatment are available?

The most common treatment is surgical removal of the cancerous tissue. Sometimes this is just the lump and sometimes the whole gland and draining lymph node are removed. If the masses involve several glands, your veterinarian may perform a "radical mastectomy" in which multiple glands and their associated lymph nodes will be removed.

Ovariohysterectomy (spaying) early in life markedly reduces the incidence of mammary cancer. Spaying at the time of tumor removal does not affect growths that are already cancerous but can cause some precancerous hyperplasias to regress and disappear. It is unlikely to prevent further tumor development.

In their early stages, mammary tumors are hormone dependent, but the hormones involved are different in different species. Medical treatments used in women are unsuitable for use in cats.

Can this cancer disappear without treatment?

Ovariohysterectomy does not affect established cancer or prevent recurrence. Development of cancer is a multi-step process so it may stop at some stages but in cats, all these cancers have the potential to progress to malignancy, usually rapidly within months. As they have this potential, early surgical removal is always recommended.

Very occasionally, spontaneous loss of blood supply to the cancer can make it die but the dead tissue will still need surgical removal. The body's immune system is not effective in causing these tumors to regress.

How can I nurse my pet?



Preventing your pet from rubbing, scratching, licking or biting the tumor will reduce itching, inflammation, ulceration, infection and bleeding. Any ulcerated area needs to be kept clean.

After surgery, the operation site similarly needs to be kept clean and dry and your pet should not be allowed to interfere with the site. Report any loss of sutures or significant swelling or bleeding to your veterinarian. If you require additional advice on post-surgical care, please ask.

How will I know how this cancer will behave?

The histopathology report will give your veterinarian the diagnosis that will indicate the type and how it is likely to behave. There is significant variation between animals in their response to tumors and the probability of further tumor development.

Any mammary lesion may develop inflammation (mastitis) and a few lumps develop solely due to inflammation.

Benign non-cancerous growths are hyperplasias (overgrowth) and dysplasias (abnormal growth). They include those arising from the epithelium that normally produces milk (lobular or epithelial hyperplasia, occasionally called adenosis), growth that also include the connective tissue between the glands (fibroadenomatous change or fibroepithelial hyperplasia) and growths due to expansion of the ducts that take the milk to the teats (cystic ducts, ductal ectasia or hyperplasia). In women, fibroadenomatous change is a risk factor for development of mammary carcinoma and in cats, most hyperplasias progress to neoplasia.

"In cats, most hyperplasias progress to neoplasia."

Benign mammary cancers are adenomas. Some arise only from the milk-producing epithelium (simple adenomas). Others include other mammary tissues such as the myoepithelium and connective tissue between the glands and are a progression of fibroadenomatous change.

Malignant cancerous growths develop from the epithelium that normally produces milk or the ducts (simple carcinoma or adenocarcinoma).

As well as the type of tumor, other important factors in predicting tumor behavior include the clinical stage it has reached, the mitotic index (proportion of cells actively dividing) and whether the tumor is locally invasive.

When will I know if the cancer is permanently cured?

'Cured' has to be a guarded term in dealing with any cancer.

It is very difficult to promise complete cure once your cat has developed mammary tumors but the following general guidelines may help. In cats, most hyperplasias progress to neoplasia. Mammary tumors are age dependent so an older queen will have a higher probability of recurrence and the likelihood of malignant tumors increases with age.

Tumors of less than 1" diameter at the time of surgery have a median postoperative survival of 3 years. Tumors greater than 1" diameter have a median survival of less than six months. Most secondary or metastatic tumors in cats develop in the lungs and, in contrast to women, rarely in bones.

"Most secondary or metastatic tumors in cats develop in the lungs."

Multiple tumors are also common. Growth in the different glands is usually multifocal in origin (meaning the tumors develop in many sites), rather than from spread or seeding of tumor cells from a single initial site. It is therefore advisable to have your cat rechecked frequently to ensure there is no regrowth of a tumor and no new ones have appeared.

Are there any risks to my family or other pets?

No, these are not infectious tumors and are not transmitted from pet to pet or from pets to people.

*This client information sheet is based on material written by: Joan Rest, BVSc, PhD, MRCPath, MRCVS
© Copyright 2009 Lifelearn Inc. Used and/or modified with permission under license.*