

Uterine Vaginal Tumors

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 are these tumors?

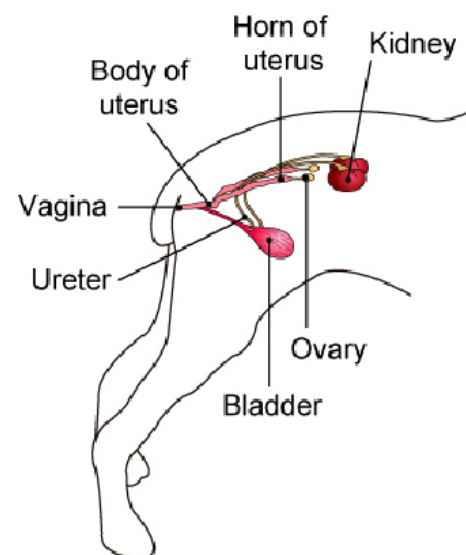
"Most swellings and tumors of the uterus are not cancerous."

Most swellings and tumors of the uterus are not cancerous. The most common swelling in the dog is **cystic endometrial hyperplasia** (overgrowth of the inner lining of the uterus) due to hormone stimulation. Sometimes, this reaction is deeper in the muscle layers and is called '**adenomyosis**'. Secondary infection and inflammation then convert the endometrial hyperplasia into pyometra (literally pus in the womb). Cysts and polyps of the endometrium can also be part of the pyometra syndrome or they may be due to congenital abnormalities. They may persist when the cause is removed and may be multiple.

Endometrial cancers may also be multiple. Benign **adenomas** of the endometrium are rare. Malignant tumors (**adenocarcinomas**) may spread (metastasize) to lymph nodes and lungs, often when the primary is still small in size.

Leiomyomas may form in the smooth muscle layers. These are most common in the vagina of the dog. They are benign and any problems are physical effects, related to the location and size of the tumor. Leiomyomas are, at least in part, hormone dependent so removal of the ovaries is an integral part of the surgical management, as it is effective in both preventing development and recurrence.

A few tumors are cysts formed in glands of various areas. They are uncommon in the vagina and can regress spontaneously. In the vagina, there may be small, viral, benign **fibropapillomas** that regress spontaneously in a few months. Malignant tumors in this area are rare, but around the vulva locally recurrent **squamous cell carcinomas**, similar to those of the skin can be seen. **Urothelial carcinoma** can also spread downwards from the bladder into the urethra.



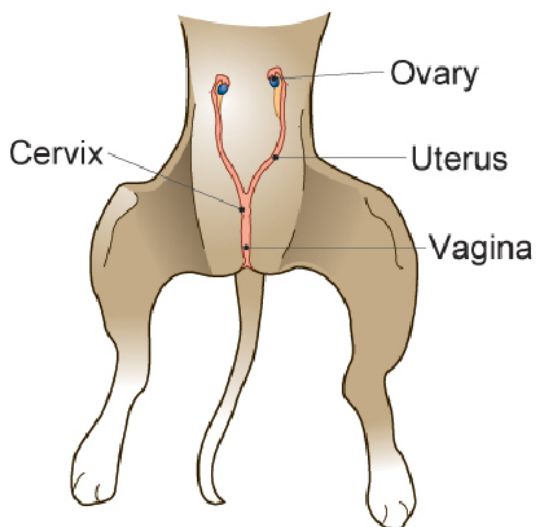
What do we know about the cause?

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.

Endometrial hyperplasia (overgrowth) of the uterus is usually due to stimulation by the natural female hormone progesterone, which remains elevated for up to two months after estrus in the dog, and for several weeks between each estrus cycle during the breeding season in the cat. It can also be induced by the female hormone estrogen, which may be produced in increased amounts by ovarian cysts or tumors. External sources of estrogen and progesterone (sometimes given medically for control of estrus cycles) can also induce the same pathology.

If progesterone is the dominant hormone, infections that enter through the vagina are able to establish themselves in the uterus. Endometrial cysts are usually secondary to overproduction of secretion due to hormonal stimulation, blockage of the ducts or infection.

"Sex hormones are the most important single risk factor for developing cancer of the uterus."



Although sex hormones are the most important single risk factor for developing cancer of the uterus, uterine adenocarcinomas do not seem to require prolonged hyperestrogenism conditioning (unlike the situation for women). Removal of the ovaries and uterus (ovariohysterectomy or spaying) prevents all these conditions.

Smooth muscle tumors (leiomyomas) are hormone dependent.

Fibropapillomas and papillomas are due to species-specific papilloma viruses. Urothelial carcinomas are similar to bladder tumors and may be caused by trauma, infection or chemicals. Female dogs have a predilection for these tumors, most of which have female hormone receptors, suggesting hormones may be needed at some stages of development. Squamous cell carcinoma of the vulva usually has UV (sunlight) initiation.

Why has my animal developed this tumor?

Some animals have a greater tendency (genetic susceptibility) to certain diseases, particularly cancer. Cancer is the result of non-lethal genetic damage to cells, with "external" contributory factors such as radiation, chemicals, hormones and infections. The mutated cells upset the normal regulation of cell death and replacement. They do this by activating growth-promoting oncogenes (cancer genes), inactivating suppressor genes and altering the genes that regulate normal, programmed cell death (apoptosis).

"The more divisions a cell undergoes, the more probable is a mutation so cancer is more common in older animals."

The more divisions a cell undergoes, the more probable is a mutation so cancer is more common in older animals. Hormone irregularities will make an animal more likely to develop smooth muscle tumors. Once uterine or vaginal tumors become malignant, they are no longer influenced by hormones.

Are these common problems?

Cystic endometrial hyperplasia, with or without secondary inflammation, is common in intact dogs and cats. Uterine cancers are rare in both cats and dogs. Tumors of the cervix are very rare in dogs and cats.

Smooth muscle tumors and polyps of the tubular part of the genital system are common in the bitch and queen. They are most common in the vaginal wall, may be single or multiple, and may reach up to 4 inches in diameter. As they grow, they develop abundant collagenous stroma and become firm in texture so are known as 'fibroleiomyomas' or fibroids. Biological behavior is the same for all of them.

All the other tumors of this area are unusual or rare.

How will this affect my pet?

Many bitches show other effects of hormone imbalance before development of tumors. These include abnormal seasons or persistent estrus. Later, uterine problems often result in discharge from the vagina. Sometimes, a swollen abdomen is the main sign. Some animals have difficulty or pain when urinating, pass fresh blood in the urine, or develop secondary bladder infections.

The most obvious effect of leiomyomas of the vagina is swelling in or around the area, sometimes with large parts of the inner lining protruding outwards and becoming visible. There may be hemorrhage, ulceration, or discharge due to secondary infection.

Urothelial carcinomas usually cause difficulty or pain on urination. Clinical signs of papillomas will vary with the location, number and size of tumors. Ulcers and external growths are usual in squamous cell carcinoma.

A few malignant tumors may not be noticed until there is weight loss, illness and lethargy associated with anemia, secondary infection of the uterus or secondary tumors. If the cancer metastasizes to the lungs, there may be shortness of breath and difficulty breathing.

How are these conditions diagnosed?

Clinically, uterine conditions can be difficult to diagnose unless there is vaginal discharge. Blood tests sometimes show changes secondary to hormone abnormalities and infection. Increased blood hormone levels are not reliable for diagnosis.

Once the uterus is removed, definitive diagnosis of the problem and prediction of behavior (prognosis) relies upon microscopic examination of tissue (histopathology). Your veterinarian will submit the samples to a specialized laboratory for examination and diagnosis by a veterinary pathologist.

Clinically, vaginal conditions are usually suspected from the clinical signs and history. Histopathology will give a diagnosis and prognosis.

Basic fibroblast growth factor in the blood is used to detect urothelial tumors in people. Although it has been found in the urine of dogs with bladder cancer, it is not yet generally available as a diagnostic test.

What types of treatment are available?

"The usual treatment for uterine diseases is surgical removal of both ovaries and the uterus."

The usual treatment for uterine diseases is surgical removal of both ovaries and the uterus (ovariohysterectomy). Other treatments are not generally available and their effectiveness is unknown.

The usual treatment for vaginal leiomyomas is surgical removal of the tumor, as well as both ovaries and the uterus. Cysts in the vagina are removed surgically, or the lining that produces the fluid is destroyed. Papillomas and squamous cell carcinomas are often removed surgically. Urothelial carcinomas may be surgically reduced in size but full removal is usually impossible because of the location. Non-steroidal anti-inflammatory drugs may be used to help in the treatment of these tumors.

Can these conditions disappear without treatment?

Endometrial hyperplasia tends to be progressive and remains in the uterus unless there is removal of the hormonal stimulus (from the ovaries or hormone therapy). The infection can be treated medically if the cervix is open.

Unless the hormone stimuli are removed, leiomyomas will not regress. Infections can be treated medically. Papillomas usually regress spontaneously in a few months through the activity of the body's immune system. The openings of cysts may unblock so they disappear.

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The body's immune system is not effective in causing malignant cancers to regress. Multiple tumors are also common.

How can I nurse my pet?



After surgery you need to keep the incision site clean and dry and prevent your pet from interfering with it. Report any loss of stitches or significant swelling or bleeding to your veterinarian. You may be asked to check that your pet can pass urine and feces. If you require additional advice on post-surgical care, please ask.

Pyometra can make your pet systemically ill, so post-operatively special diets and nursing care may be required until she has restored kidney and liver function and the circulation and blood have returned to normal. Please ask if you need more advice.

When will I know if the cancer is permanently cured?

Histopathology will give your veterinarian the diagnosis that will indicate the nature of the tumor and how it is likely to behave.

Within a few weeks, you should know whether uterine cancer has been removed in time to prevent spread to other parts of the body.

Surgery or spontaneous regression should cure all the benign tumors of the vagina. Only the malignant tumors (urothelial carcinoma and squamous cell carcinoma) cannot always be permanently cured. Urothelial carcinoma is often not curable because of the site and the stage of disease but squamous cell carcinomas can usually be cured surgically without spread to other parts of the body.

Are there any risks to my family or other pets?

No, these are not contagious diseases 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

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