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TUMORS OF THE UTERUS, VAGINA AND VULVA

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 for tumors in animals is improving all the time.

We understand that this can be a very worrying time. We apologize for the need to use some technical language. If you have any questions please do not hesitate to ask us.

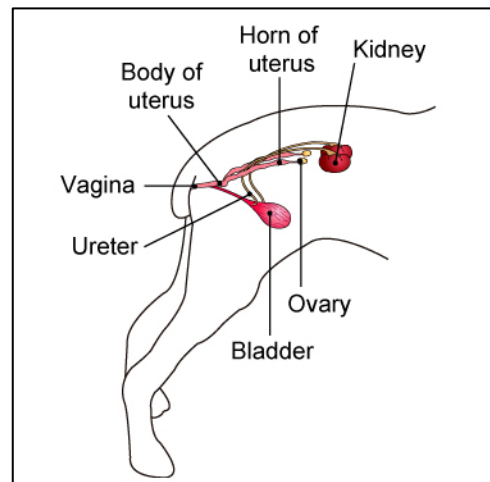
What are these tumors?

Most swellings and tumors of the uterus are not cancerous. The most common in the bitch 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 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.

Tumors (**leiomyomas**) also form in the smooth muscle layers. These are most common in the vagina of the bitch. They are benign and problems are physical effects, related to the site and size of the tumour. 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.

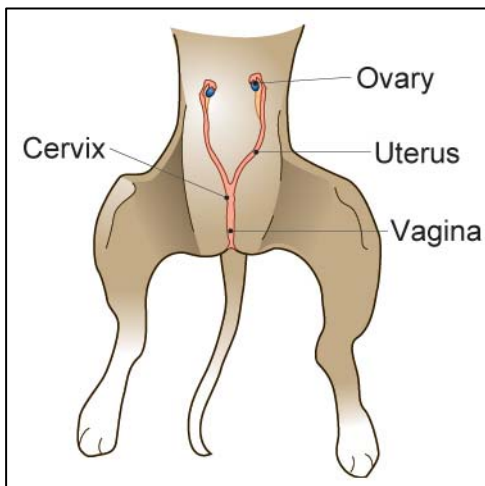
A few tumors are cysts formed in glands of various areas. They are uncommon in the vagina and can regress spontaneously. In the vagina, there may be small, viral, benign **fibropapillomas** that regress spontaneously in a few months. Malignant tumors in this area are rare but around the vulva, locally 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 seemingly the culmination of a series of circumstances that come together for the unfortunate individual.

Endometrial hyperplasia (overgrowth) of the uterus (womb) is usually due to stimulation by the natural female hormone progesterone during the long (luteal) phase between seasons in the bitch and queen. It can also be induced by the female hormone oestrogen. This may be the animal's own hormone (produced by tumors of the ovary or ovarian cysts). External sources of estrogen and progesterone given for medical reasons can also induce the same pathology. Infection usually enters through the vagina and is able to establish itself when progesterone is the major hormone. Cysts are usually secondary to overproduction of secretion due to hormonal stimulation, blockage of the ducts or infection.



Although sex hormones are the most important single factor increasing the risk of 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 papilloma viruses that do not affect other species of animals or humans. Urothelial carcinomas are similar in cause to bladder tumors and may be caused by trauma, infection or chemicals. Female

dogs have a predilection for these tumors and most 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 tumour?

Some animals have a greater tendency (genetic susceptibility) to certain diseases, particularly cancer. 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 have smooth muscle tumors. Once tumors are malignant, they are no longer influenced by hormones.

Are these common problems?

Cystic endometrial hyperplasia with or without secondary inflammation is common in unspayed 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 and may be single or multiple and 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 passing water (urinating) or secondary infection or they pass fresh blood in the urine.

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

Urothelial carcinomas usually cause difficulty or pain on urination. Papilloma clinical signs will vary with the site, number of tumors and their size. 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 help as there may be changes in the blood cells 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). This is done at a specialized laboratory 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 urethelial tumors in people but 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. Other treatments are not generally available and their effectiveness is unknown.

The usual treatment for vaginal leiomyomas is surgical removal of the tumour and both ovaries and the uterus. Cysts in the vagina are also removed or the lining that produces the fluid 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 site. 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 womb is open.

Unless the hormone stimuli are removed, leiomyomas will not regress. Infections can be treated medically and 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.

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

How can I nurse my pet?

After surgery, the operation site similarly needs to be kept clean and your pet should not be allowed to interfere with the site. Any loss of sutures or significant swelling or bleeding should be reported 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 ill so post-operative special diets and nursing 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?

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

Histopathology will give your veterinarian the diagnosis that will indicate the nature of the tumour 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.

All the benign tumors of the vagina should be cured by surgery or spontaneous regression. Only the malignant tumors (urethelial carcinoma and squamous cell carcinoma) cannot always be permanently cured. Urethelial 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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