

Ovarian Tumors

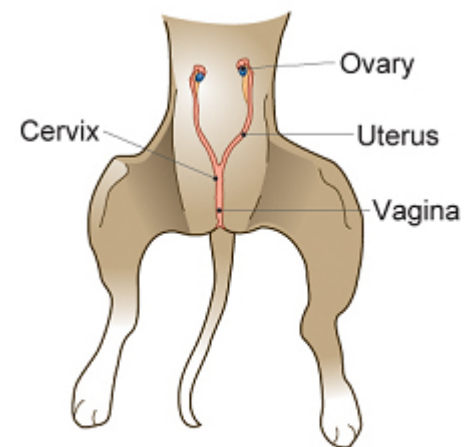
These notes are provided to help you understand the diagnosis or possible diagnosis of cancer in your pet. For general information on cancer in pets ask for our handout "What is Cancer". Your veterinarian may suggest certain tests to help confirm or eliminate diagnosis, and to help assess treatment options 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 the ovarian tumors?

The ovary contains several different cell types. These include the germ cells, which make the eggs, the supporting (stromal) and hormone-producing cells as well as epithelium, connective tissue and blood vessels.

Any or all of these cell types may become cancerous. When germ cells become cancerous, the tumors are called **dysgerminomas**. Tumors of ovarian stromal cells include **granulosa cell tumors**, **thecomas** and **interstitial cell tumors (luteomas)**. These tumor types overlap and they may occur singly or in any combination. Epithelial tumors include **papillary adenoma** and **adenocarcinomas**. Rare types of ovarian tumor include the **teratoma** formed by embryonic germ (primitive) cells that develop abnormally to produce many different tissues.



Reproductive Anatomy

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Some ovarian cancers are benign and others malignant. In some cases, removal of the affected ovary will be curative. Spread to other internal organs (metastasis) is possible with some types, particularly the larger tumors.

Some tumors are not cancerous but are merely fluid-filled cavities or cysts. In and around the ovary, cysts are common and arise in a number of different ways; it is often impossible to differentiate between them by the time they are noticed.

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.

Cancer causes include radiation, chemicals, hormones and infections. At some stages, ovarian tumors require hormones to enable them to grow. It is thought that some surface skin tumors can be induced by ovarian granulosa tumors.

Why has my animal developed this cancer?

We do not know precisely why some animals develop these cancers and others do not; however, we know that abnormal hormone balance is one cause. The more divisions a cell undergoes, the more probable is a mutation so cancer is more common in older animals.

Are these common tumors?

None of these tumors is common. Granulosa cell and epithelial tumors are the most common ovarian tumors in bitches. They are infrequent in the queen. Dysgerminomas and teratomas are rare. It is difficult to generalize on occurrence of dysgerminoma because they are rare but they appear to be tumors of advanced age. Stromal tumors such as thecoma are infrequent and interstitial cell tumors (luteomas) are rare.

How will the cancer affect my pet?

"These signs include abnormal seasons, persistent estrus, discharge from the vagina, and masculinization."

Some tumors are found because of the clinical signs caused by excess hormone production. These signs include abnormal seasons, persistent estrus, discharge from the vagina, and masculinization. Granulosa cell and epithelial tumors produce the female hormone estrogen so they cause enlargement of the uterus, sometimes with secondary infection (pyometra). Some sub-types have the potential to produce male hormones. Most interstitial cell tumors are hormonally active. It is not uncommon to find mammary tumors in bitches and queens with ovarian tumors.

Stromal granulosa cell, epithelial tumors and dysgerminomas may become very large, in which case a swollen abdomen is the main sign. Granulosa cell tumors grow up to 6 inches diameter in the bitch.

A few tumors may not be noticed until there is weight loss, illness and lethargy associated with anemia, secondary infection of the uterus or metastatic tumors elsewhere in the body. Pieces may break off the shaggy surface of epithelial tumors and implant on the inner wall of the abdomen where they will continue to grow. . The lymph or blood may carry tumor cells to other internal organs such as the spleen, liver and lungs, where they can grow.

How is this cancer diagnosed?

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Clinically, these tumors can be difficult to diagnose because of the great variety of clinical signs they can cause. Increased blood hormone levels are not reliable for diagnosis of these tumors.

Once the tumor has been removed, definitive diagnosis of the type of tumor, the stage it has reached and therefore prediction of its behavior (prognosis) relies upon microscopic examination of tissue (histopathology). Your veterinarian will send the ovarian tumor to a specialized diagnostic laboratory for evaluation by a veterinary pathologist.

What treatment is available?

The usual treatment is surgical removal of both ovaries and the uterus. Other treatments are not generally available and their effectiveness is unknown.

Can these cancers disappear without treatment?

Cancer rarely disappears without treatment but as development is a multi-step process, it may stop at some stages. Rarely, loss of blood supply will make the cancer degenerate but the dead tissue can cause toxic problems. The body's immune system is not effective in making these tumors stop growing. Theoretically, removal of hormonal stimuli will stop the growth of some tumors, but in most cases this can only be achieved by removal of the cancerous tissue.

How can I nurse my pet?

After surgery, the site needs to be kept clean and your pet should not be allowed to interfere with it. Any loss of sutures or significant swelling or bleeding should be reported to your veterinarian. You may be asked to check that your pet passes urine and feces. If you require additional advice on post-surgical care, please ask.

How will I know how the cancer will behave?

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The histopathology report will give your veterinarian the diagnosis that helps to indicate how this tumor is likely to behave. The veterinary pathologist usually adds a prognosis that describes the probability of local recurrence or metastasis (distant spread).

Dysgerminomas are rare and are usually single, large tumors. In the bitch, it is thought that in their advanced stages, 10–20% spread locally in the body cavity or metastasize to other organs. Teratomas are usually benign.

Granulosa cell tumors are usually malignant in cats and sometimes are in dogs. Secondary tumors implant on the inner wall of the abdomen and in internal organs such as the spleen, liver and lungs. Thecomas are probably curable by removal of the ovaries but reliable information is not available. Interstitial cell tumors are reported to be benign.

Epithelial tumors are difficult to differentiate into benign and malignant categories. Large tumors are more likely to be malignant and histopathology may indicate invasion.

How will I know if the cancer is permanently cured?

It is very difficult to predict whether a cure is possible once your pet has developed one of these tumors, but knowing the type will help this assessment. Although dysgerminomas are usually unilateral, epithelial and stromal tumors may be multicentric and bilateral.



Histopathology may indicate if there is evidence of malignant cells spreading at the time of surgery, thus helping to predict the long-term prognosis. If your pet develops swelling of the abdomen, abnormal symptoms that could be caused by high levels of hormones, or other signs of illness, it may indicate that the tumor has regrown.

Most ovarian tumors are age dependent so an older animal has more risk of developing tumors. However, this is not absolute and an ovarian epithelial tumor has been recorded in association with pyometra (pus in the uterus) at one year of age. It is therefore advisable to have your pet rechecked at regular intervals.

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

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