

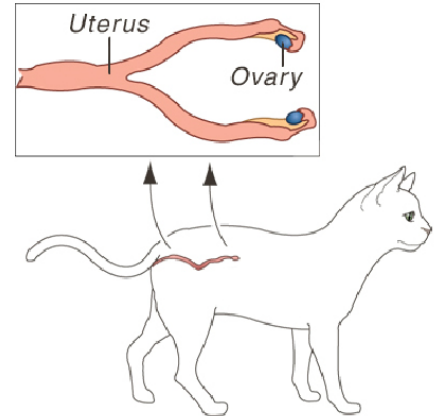
Pyometra in Cats

What is pyometra and how does it occur?

In its simplest terms, *pyometra* is an infection in the uterus. Pyometra is considered a serious and life threatening condition that must be treated quickly and aggressively.

"Pyometra is a secondary infection that occurs because of hormonal changes in the female's reproductive tract."

Pyometra is a secondary infection that occurs because of hormonal changes in the female's reproductive tract. Following estrus or "heat", progesterone levels remain elevated for several weeks, stimulating the uterine lining to thicken in preparation for pregnancy. If pregnancy does not occur for several estrus cycles, the lining continues to increase in thickness until cysts form in the uterus. This condition is called cystic endometrial hyperplasia. The thickened, cystic lining secretes fluids that create an ideal environment in which bacteria can grow. Additionally, high progesterone levels inhibit the ability of the muscles in the wall of the uterus to contract and expel accumulated fluids or bacteria. Another contributing factor is the fact that during estrus, white blood cells, which normally protect against infection, are inhibited from entering the uterus. This normal occurrence allows sperm to safely enter the female's reproductive tract without being damaged or destroyed by the white blood cells. The combination of these factors often leads to infection.



What else can cause changes in the uterus?

The use of progesterone-based drugs can cause changes in the uterus similar to the estrus cycle. In addition, estrogen or synthetic estrogen drugs will increase the effects of progesterone on the uterus. Drugs containing both estrogen and progesterone are sometimes used to treat certain conditions of the reproductive system. Any intact female receiving hormones must be carefully monitored for the development of pyometra.

How do bacteria get into the uterus?

The cervix is the gateway to the uterus. It remains tightly closed except during estrus, when it relaxes to allow sperm to enter the uterus.

"If the cervix is open or relaxed, bacteria that...can enter the uterus easily."

If the cervix is open or relaxed, bacteria that are normally found in the vagina can enter the uterus easily. If the uterus is normal, the uterine environment is adverse to bacterial survival; however, when the uterine wall is thickened or cystic, perfect conditions exist for bacterial growth. In addition, when these abnormal conditions exist, the muscles of the uterus cannot contract properly either due to thickening of the uterine wall or the hormone progesterone. This means that bacteria that enter the uterus cannot be expelled.

When does pyometra occur?

Pyometra may occur in any sexually intact young to middle-aged cat; however, it is most common in older cats.

"Pyometra usually occurs two to eight weeks after the last estrus or the heat cycle."

After many years of estrus cycles without pregnancy, the uterine wall undergoes the changes that promote this disease. Pyometra usually occurs two to eight weeks after the last estrus or the "heat cycle".

What are the clinical signs of pyometra?



The clinical signs depend on whether or not the cervix remains open. If it is open, pus will drain from the uterus through the vagina to the outside. This discharge may be observed on the skin or hair under the tail, or on bedding and furniture where the cat has lain. In many cases, the fastidious nature of the cat causes her to clean up the discharge before it can be seen. With an open pyometra, fever, lethargy, anorexia, and depression may or may not be present.

If the cervix is closed, the pus that forms is unable to drain to the outside. It collects in the uterus causing distention of the abdomen. The bacteria release toxins that are absorbed into the circulation. Cats with closed pyometra become severely ill very rapidly. They are anorectic, very listless, and very depressed. Vomiting or diarrhea may also be present.

Toxins released by the bacteria affect the kidney's ability to retain fluid. Increased urine production occurs, and the cat drinks an excess of water to compensate. This occurs in both open- and closed-cervix pyometra.

How is pyometra diagnosed?

Cats that are examined early in course of the disease may have a slight vaginal discharge and show no other signs of illness. However, most cats with pyometra are seen later in the illness. Any very ill female cat that is drinking an increased amount of water and that has not been spayed should be suspected of having pyometra. This is especially true if there is a vaginal discharge or a painful, enlarged abdomen.

Cats with pyometra usually have a severe elevation of the white blood cell count and often have an elevation of globulins, a type of protein often associated with the immune system, in the blood. The specific gravity (concentration) of the urine is very low due to the toxic effects of the bacteria on the kidneys. However, these changes are non-specific, and may be present in any cat with a major bacterial infection.

If the cervix is closed, radiographs (x-rays) of the abdomen will often identify the enlarged uterus. If the cervix is open, there will often be such minimal uterine enlargement that the radiograph will not be conclusive. An ultrasound examination may be helpful in identifying an enlarged uterus and differentiating that from a normal pregnancy.

How is pyometra treated?

"The preferred treatment is to surgically remove the uterus and ovaries."

The preferred treatment is to surgically remove the uterus and ovaries, or perform an ovariohysterectomy or "spay". Cats diagnosed in the early stage of the disease are very good surgical candidates. The pyometra surgery is somewhat more complicated than a routine spay at this stage. However, most cats are diagnosed when they are quite ill, resulting in a more complicated surgical procedure and a longer period of hospitalization. Intravenous fluids are required to stabilize the cat before and after surgery. Antibiotics are usually given for two weeks post-operatively.

I want to breed my cat in the future. Is there an alternative to surgery?

For most cats, we strongly recommend surgery to treat pyometra. There is a medical approach to treating pyometra, although the success rate is widely variable and not without considerable risk and potential long-term complications. *Prostaglandins* are a group of hormones that lower the blood level of progesterone, relax and open the cervix, and cause the uterus to contract and expel bacteria and pus. They can be used to treat this disease, but they are not always successful and have some important limitations.

1. They cause side effects including restlessness, panting, vomiting, defecation, salivation, and abdominal pain. The side effects occur within about fifteen minutes after administration and often last for a few hours. They become progressively milder with each successive treatment. The pain may be lessened by exercising the cat or otherwise distracting them for about 30 minutes following an injection.
2. There is no clinical improvement for about forty-eight hours, so cats that are severely ill and need immediate life-saving treatment are poor candidates.
3. Because prostaglandins cause the uterus to contract, it is possible for the uterus to rupture and spill infection into the abdominal cavity resulting in the severely life-threatening condition known as *peritonitis*. This is most likely to happen when the cervix is closed.

Some important statistics that you should know about non-surgical forms of treatment are:

1. The success rate for treating open-cervix pyometra is approximately 75–90% in uncomplicated cases.
2. The success rate for treating closed-cervix pyometra is only about 25–40%.
3. The rate of recurrence of the disease in a treated cat is generally thought to be as high as 50–75%.
4. The chance of future successful breeding is decreased to about 50–75%.

What happens if I do not treat my cat?

"The chance of successful resolution without surgery or prostaglandin treatment is extremely low."

The chance of successful resolution without surgery or prostaglandin treatment is extremely low. If treatment is not performed quickly, the toxic effects from the bacteria will be fatal in many cases. If the cervix is closed, it is possible for the uterus to rupture, spilling the infection into the abdominal cavity. This will also be fatal. Pyometra is a serious medical condition that requires prompt treatment.

This client information sheet is based on material written by: Ernest Ward, DVM

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