



**O A K B A Y A N I M A L H O S P I T A L**

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## **PYOMETRA IN DOGS**

### ***What is pyometra?***

In its simplest terms, pyometra is an infection in the uterus. However, most cases of pyometra are much more difficult to manage than a routine infection.

Infection in the lining of the uterus is established as a result of hormonal changes. Following estrus (“heat”), progesterone levels remain elevated for 8-10 weeks and thicken the lining of the uterus in preparation for pregnancy. If pregnancy does not occur for several estrus cycles, the lining continues to increase in thickness until cysts form within it. 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.

### ***Are there other situations that cause the changes in the uterus?***

Yes. The use of progesterone-based drugs can do this. In addition, estrogen will increase the effects of progesterone on the uterus. Drugs containing both hormones are used to treat certain conditions of the reproductive system.

### ***How do bacteria get into the uterus?***

The cervix is the gateway to the uterus. It remains tightly closed except during estrus. When it is open, bacteria that are normally found in the vagina can enter the uterus rather easily. If the uterus is normal, the environment is adverse to bacterial survival; however, when the uterine wall is thickened and cystic, perfect conditions exist for bacterial growth. In addition, when these abnormal conditions exist, the muscles of the uterus cannot contract properly. This means that bacteria that enter the uterus cannot be expelled.

### ***When does it occur?***

Pyometra may occur in young to middle-aged dogs; however, it is most common in older dogs. After many years of estrus cycles without pregnancy, the uterine wall undergoes the changes that promote this disease.

The typical time for pyometra to occur is about 1-2 months following estrus.

### ***What are the clinical signs of a dog with pyometra?***

The clinical signs depend on whether or not the cervix is open. If it is open, pus will drain from the uterus through the vagina to the outside. It is often noted on the skin or hair under the tail or on bedding and furniture where the dog has laid. Fever, lethargy, anorexia, and depression may or may not be present.

If the cervix is closed, pus that forms is not able to drain to the outside. It collects in the uterus causing distention of the abdomen. The bacteria release toxins which are absorbed into circulation. These dogs often become severely ill very rapidly. They are anorectic, very listless, and very depressed. Vomiting or diarrhea may be present.

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

### ***How is it diagnosed?***

Dogs that are seen early in the disease may have a slight vaginal discharge and show no other signs of illness. However, most dogs with pyometra are not seen until later in the illness. A very ill female dog that is drinking an increased amount of water and has not been spayed is always suspected of having pyometra. This is especially true if there is a vaginal discharge or an enlarged abdomen.

Dogs with pyometra have a marked elevation of the white blood cell count and often have an elevation of globulins (a type of protein produced by the immune system) in the blood. The specific gravity of the urine is very low due to the toxic effects of the bacteria on the kidneys. However, all of these abnormalities may be present in any dog 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 can also be helpful in identifying an enlarged uterus and differentiating that from a normal pregnancy.

### ***How is it treated?***

The preferred treatment is to surgically remove the uterus and ovaries. This is called an ovariohysterectomy ("spay"). Dogs diagnosed in the early stage of the disease are very good surgical candidates. The surgery is only slightly more complicated than a routine spay. However, most dogs are diagnosed when they are quite ill so the surgery is not as routine as the same surgery in a healthy dog. Intravenous fluids are often needed before and after surgery. Antibiotics are given for 1-2 weeks.

### ***My dog is a valuable breeding bitch. Can anything else be done other than surgery?***

There is a medical approach to treating pyometra. Prostaglandins are a group of hormones that reduce the blood level of progesterone, relax and open the cervix, and contract the uterus to expel bacteria and pus. They can be used successfully to treat this disease, but they are not always successful and they have some important limitations.

1. They cause side-effects of restlessness, panting, vomiting, defecation, salivation, and abdominal pain. The side-effects occur within about 15 minutes of an injection and last for a few hours. They become progressively milder with each successive treatment and may be lessened by walking the dog for about 30 minutes following an injection.
2. There is no clinical improvement for about 48 hours so dogs that are severely ill are poor candidates.
3. Because they contract the uterus, it is possible for the uterus to rupture and spill infection into the abdominal cavity. This is most likely to happen when the cervix is closed.

There are some important statistics that you should know about this form of treatment:

1. The success rate for treating open-cervix pyometra is 75-90%.
2. The success rate for treating closed-cervix pyometra is 25-40%.
3. The rate of recurrence of the disease is 50-75%.
4. The chances of subsequent successful breeding is 50-75%.

### ***What happens if neither of the above treatments are given?***

The chance of successful treatment without surgery or prostaglandin treatment is extremely low. If treatment is not performed quickly, the toxic effects from the bacteria will be fatal. If the cervix is closed, it is also possible for the uterus to rupture, spilling the infection into the abdominal cavity. This will also be fatal.