



DANADA VETERINARY HOSPITAL, P.C.

Pyometra in Dogs

Pyometra is a bacterial infection of the uterus. Pyometra most often occurs within 1-12 weeks after the end of estrus (“heat”), and can lead to serious, and potentially life-threatening illness for affected dogs.

Prevalence

Pyometra is most often seen in middle-aged bitches that have undergone numerous estrous cycles during their lifetime. There is no known breed predisposition for canine pyometra.

Clinical Signs

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

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 that are absorbed into circulation. These dogs often become severely ill very rapidly. They lose their appetite, and are very listless, and very depressed. Vomiting or diarrhea may be present.

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

Closed pyometras are an absolute medical emergency and should be treated with the utmost urgency. Failure to do so can lead to toxic damage to the bloodstream and rupture of the uterus resulting in an often-fatal infection of the abdominal cavity (peritonitis).

Causes/Transmission

Infection in the lining of the uterus is established because 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 estrous 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.

The use of progesterone-based drugs or estrogens can also cause pyometra. Drugs containing both hormones are used to treat certain conditions of the reproductive system.

Lastly, 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 easily. If the uterus is normal, the environment is not well suited 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. The most common bacterium isolated is *E. coli*.

Diagnosis

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. Any extremely 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 advanced 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 urine may be very dilute due to the toxic effects of the bacteria on the kidneys. However, all 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.

Treatment

The preferred treatment is to surgically remove the uterus and ovaries. This is called an ovariectomy ("spay"). Dogs diagnosed in the early stage of the disease are 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.

A medical approach to treating pyometra does exist but is rarely recommended. 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 to treat the disease, but response is not consistently reliable. Surgical removal is preferred over medical management for this reason as well as the following:

Prostaglandins can 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.

Clinical improvement can take up to 48 hours so dogs that are severely ill are poor candidates.

Prostaglandins contract the uterus, making it possible for the uterus to rupture and spill infection into the abdominal cavity. This is most likely to happen when the cervix is closed.

Overall statistics for medically managed pyometra are:

The success rate for treating open cervix pyometra is 75-90%

The success rate for treating closed cervix pyometra is 25-40%

The rate of recurrence of the disease is 50-75%

The chance of subsequent successful breeding is 50-75%

Medical management should only be considered as a reasonable alternative to surgery if a patient is not a suitable surgical candidate due to anesthetic risks and the pyometra is open.

Prognosis

The possibility of successfully resolving pyometra without surgery or prostaglandin treatment is extremely low. If a treatment is not selected and 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.