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Popular Article

Pyometra in animals

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Pyometra is a secondary infection due to hormonal changes in a female's reproductive tract. Following estrus (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 estrous cycles, the lining increases in thickness until cysts form in the uterus. This condition is called cystic endometrial hyperplasia (CEH). The thickened cystic lining secretes fluids, creating an ideal environment where 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 that white blood cells, which normally protect against infection, are inhibited from entering the uterus during estrus. This normal occurrence allows sperm to safely enter the female's reproductive tract without being damaged or destroyed by these white blood cells. The combination of these factors can often lead to life-threatening infection. Progesterone-based drugs can cause changes in the uterus similar to the estrous cycle. In addition, estrogen or synthetic estrogen drugs will increase the effects of progesterone on 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 normally found in the vagina can enter the uterus easily. If the uterus is normal, the uterine environment is aversive 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 the thickening of the uterine wall or the hormone progesterone. This means that bacteria that enter the uterus cannot be expelled. Pyometra may occur in any sexually intact young to middle-aged dog; however, it is most common in older dogs. Typically, the dog has been in heat within the previous four weeks. After many

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

Clinical Signs

In dogs, the clinical signs depend on whether the cervix remains open. Purulent discharge will drain from the uterus through the vagina to the outside if it is open. This discharge may be observed on the skin or hair under the tail or on bedding and furniture where the dog has recently laid. With an open pyometra, fever, lethargy, anorexia, and depression may or may not be present. If the cervix is closed, the discharge that forms cannot drain to the outside. It collects in the uterus, causing distention of the abdomen. The bacteria release toxins that are absorbed into the circulation. Dogs with closed pyometra become severely ill very rapidly. They are anorectic (will not eat), listless, and 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 dog drinks large amounts of water to compensate. This occurs in both open- and closed-cervix pyometra.

Pyometra in production animals is characterized by the accumulation of purulent or mucopurulent exudate in the uterus. In cows, it is invariably accompanied by the persistence of an active corpus luteum and interruption of the estrous cycle. In affected mares, the cervix is often fibrotic, inelastic, affected with transluminal adhesions, or otherwise impaired. Mares may continue to cycle regularly, or the cycle may be interrupted. Discharge from the genital tract may be absent or intermittent and corresponding to periods of estrus. In general, affected animals do not exhibit any systemic signs of illness, but affected mares may be in poor condition.

The most effective treatment for pyometra is surgery to remove the uterus and ovaries, also known as a spay or ovariohysterectomy. If treatment is not performed quickly, the toxic effects from the bacteria will be fatal in many cases. If the cervix is closed, the uterus can rupture, spilling the infection into the abdominal cavity. This will be fatal. Pyometra is a serious medical condition that requires prompt treatment.

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Diagnosis

Dogs examined early in the course of the disease may have a slight vaginal discharge and show no other signs of illness. However, most dogs with pyometra are seen later in the illness. Any very ill female dog drinking an increased amount of water and 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. Dogs with pyometra usually have a severe elevation of the white blood cell count. They often have an elevation of globulins, a 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 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 may help identify an enlarged uterus and differentiate that from a normal pregnancy.

Prevention

Pyometra is entirely preventable if a dog is spayed before the development of infection in the uterus. A spay to remove the ovaries and uterus is recommended to prevent pyometra. If a dog is intended for breeding, they should be bred at the appropriate age to minimize their risk of developing a pyometra. Having your dog spayed while young and healthy is safer and less costly than waiting for an emergency pyometra spay.

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