Vet Advice

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Hydrometra, Mucometra & Pyometra

What are the differences between hydrometra, mucometra and pyometra?

These three conditions are diseases of the uterus that can develop in female dogs. Uterine diseases in dogs are influenced by the hormone progesterone, which prepares bitches for pregnancy and is necessary to maintain a pregnancy. As important as this hormone is, sometimes things do not go as planned.

The uterus, or one of it's two horns, may fill with one of several different types of fluid. The effects of this can range from silent infertility to a life-threatening infection that requires emergency surgery.

During a bitch's estrus cycle her progesterone level rises and stays elevated whether she is bred and pregnant or not. The high levels of progesterone remain for nearly two months. This high hormone level causes the lining of the uterus to thicken in preparation for pregnancy. Progesterone also suppresses the uterus's immune function.

If there is no pregnancy after several cycles, the uterine lining keeps getting thicker until eventually some cysts form inside the lining. This condition is known as cystic endometrial hyperplasia. The cysts in the thickened lining leak fluid into the uterus.

A fluid-filled uterus has three stages called hydrometra, mucometra, or pyometra.

Hydrometra is a condition where the uterus fills with watery fluid. It is the first stage of fluid buildup in the uterus.

Mucometra is an accumulation of thick mucoid fluid in the uterus. In hydrometra and mucometra, the fluid is sterile and there is no infection.

Pyometra is a serious and potentially life-threatening infection of the uterus that causes it to fill with bacteria and pus. The thickened cystic lining of the uterus secretes fluids which creates an ideal environment for bacteria to grow. At the same time, the muscles of the uterus cannot contract properly due to the thickening of the uterine wall, so the uterus cannot easily expel accumulated fluid or bacteria. Normally, the body's white blood cells would attack any infection, but during estrus, the uterus keeps the white blood cells out so that sperm can safely enter the female's reproductive tract without being damaged or destroyed. The absence of white blood cells allows the bacterial infection to grow.

The cervix is the "gateway" to the uterus. Most of the time it is tightly closed, but during estrus it relaxes to allow sperm to enter the uterus. When the cervix is open or relaxed, bacteria normally found in the vagina can easily enter the uterus. When the uterine wall is thickened or cystic, the conditions are perfect for bacterial growth.

What are the symptoms of fluid in the uterus?

Discovering the presence of hydrometra and mucometra is important. These conditions lead to decreased fertility and likely increase the risk of developing more serious uterine disease. Dogs with hydrometra or

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mucometra often show very few, if any, signs of illness. Unlike pyometra, there is generally no fever, vomiting, or loss of appetite.

Some dogs have swelling of the abdomen. They may experience general discomfort or lethargy from the physical weight and compression of the surrounding organs.

Bitches with hydrometra and mucometra will be infertile.

The signs of a pyometra will depend on whether the cervix is open or closed. More severe signs of illness will occur when the cervix is closed since the toxic material accumulates in the uterus. The trapped bacteria release toxins into the blood stream and the bitch becomes very sick very quickly. They will not eat, are listless, and depressed. Vomiting and diarrhea may occur.

In cases of an open pyometra, the open cervix allows the pus to drain. Thick vaginal discharge that is tan or bloody-colored is the primary sign. Dogs with an open cervix pyometra will have similar symptoms to a closed cervix pyometra along with a bloated belly and fever.

In both forms of pyometra, the uterus can potentially rupture, which releases large amounts of pus and dead tissue into the abdomen. If the infection is not treated, the condition may progress to shock, collapse, and even death.

Excessive thirst is also a common symptom of pyometra. 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.

How is a hydrometra or mucometra diagnosed?

Since hydrometra or mucometra are often "silent" with no outward symptoms other than missed matings, it is frequently discovered as an incidental finding during unrelated examinations using ultrasound or x-rays.

The fluid or mucus accumulation may be small enough to not cause uterine enlargement. However, the presence of water or mucus prevents the embryos from implanting in the uterine wall.

I commonly find hydrometra or mucometra during surgery when the bitches are being spayed.

How is a pyometra diagnosed

Any sick intact female dog that is drinking an increased amount of water should be suspected of having a pyometra, particularly if there is a vaginal discharge, a painful, enlarged abdomen, and she has recently been in season.

Blood tests usually show a severe elevation of the white blood cell count. Urine tests may show that the urine is more diluted than normal.

Imaging with x-rays or ultrasound is the best way to evaluate the uterus. If the cervix is closed, radiographs of the abdomen show an enlarged uterus. If the cervix is open, the uterus may not look enlarged. Ultrasound examination will identify an enlarged, fluid-filled uterus and distinguish it from a normal pregnancy.

What is the treatment for fluid in the uterus?

Medical management involves using a drug called dinoprost (Lutalyse), a prostaglandin drug, to clean out the uterine

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contents. It is used to lower the progesterone levels in the blood in order to induce labor and open the cervix. The same contractions as occur in labor help eject the excess fluid. Sometimes vaginal infusion of warm saline can help empty the uterus.

While any stage of hydrometra or mucometra can be treated medically, they will recur. They do not tend to resolve on their own. Because the fluid is not initially infected, there are fewer symptoms of illness than pyometra. The trapped, nutrient-rich fluid or mucus makes the uterus highly vulnerable to bacteria, increasing the risk of developing pyometra. Surgical removal of the uterus is the only permanent solution.

How is pyometra treated?

The preferred treatment for pyometra is to surgically remove the uterus and ovaries by performing an ovariohysterectomy (spay). Pyometra surgery is more complex than a routine spay because the uterus is much larger and more fragile. Dogs diagnosed in the early stage of the disease are good candidates for surgery. Dogs diagnosed later as the disease process has progressed are at higher risk for anesthetic complication and death. These females require treatment for sepsis or peritonitis before and after the surgery. Intravenous fluids and antibiotics are an important part of the treatment.

For bitches that are important to a breeding program, the medical approach to treating pyometra can be considered. It should be noted that this option is less reliable and carries considerable risks and potential long-term complications.

The medical treatment for pyometra uses the prostaglandins mentioned above. Due to the compromised condition and infected uterus, the treatment has considerable side effects and is not always successful. Patients often feel quite unwell after the treatment. Side effects include restlessness, panting, vomiting, defecation, salivation, and abdominal pain. These usually start about 15 minutes after the injection and last a few hours. The side effects do tend to lessen with repeated doses.

The prostaglandins are slow to take effect. It is usually 48 hours before clinical improvement is seen. This makes it a poor choice for severely ill dogs that need immediate care.

As the uterus contracts, there is a risk it could tear or rupture and leak infection into the abdominal cavity, resulting in life-threatening peritonitis. This risk is higher if the cervix is closed.

Even if the treatment is successful, the uterus is still abnormal. Pyometra often comes back and future fertility can be compromised.

If a pyometra is not treated, either with surgery or prostaglandins, The toxic effects from the bacteria are fatal in many cases. Pyometra is a serious medical condition that requires prompt treatment.