



A Monthly e Magazine  
ISSN:2583-2212  
Jan 2024 Vol.4(1), 397-403

Popular Article

## Reproductive Disorders of Canines

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<https://doi.org/10.5281/zenodo.10576141>

There are many reproductive diseases that can affect female dogs. The most common diseases are as follows:

### Abnormal or Difficult Birth (Dystocia)

Some breeds, such as Boxers, are more likely to have difficult births than others. Dystocia should be considered in any of the following situations: 1) dogs that have a history of dystocia; 2) birth that does not occur within 24 hours of a drop in rectal temperature to less than 100°F (a sign of impending birth); 3) continuous strong contraction for more than 1–2 hours with no birth; 4) active labor for more than 1 to 2 hours without a birth; 5) a resting period during labor that lasts more than 4 to 6 hours; 6) obvious pain or illness in the mother (for example, crying, licking, or biting of the vulva); and 7) abnormal discharge from the vulvar area.

Once the cause is identified, the appropriate treatment can be determined. X-rays or ultrasonography can show how many fetuses are present. Medication may help the labor progress if the mother and fetuses are still in stable condition and there is no obstruction. Surgery (cesarean section) is performed if the mother or the fetuses are not stable, there is an obstruction, active labor is prolonged, or medications do not work.

### False Pregnancy (Pseudopregnancy)

False pregnancy (pseudopregnancy) is common in female dogs. It occurs at the end of the heat cycle and is characterized by weight gain, enlarged abdomen, swelling of the mammary glands, milk production, and behavioral changes. Some dogs behave as if delivery



has occurred and “mother” by nesting inanimate objects (such as toys or shoes) and refusing to eat. Veterinarian will eliminate the possibility of true pregnancy by the medical history, physical examination, and x-rays or ultrasonography.

Treatment is often not recommended because the condition usually ends on its own in 1 to 3 weeks. You should not milk out the mammary glands, because this will only stimulate production of more milk. Treatment can be given to animals that are uncomfortable because of milk production or to those with behavior that is troublesome.

### **Follicular Cysts**

Follicular cysts are fluid-filled structures that develop within the ovary and lead to prolonged secretion of estrogen and continuous signs of estrus (heat) and attractiveness to males. Ovulation may not occur during these abnormal estrous cycles. Follicular cysts should be suspected in any dog showing signs of heat for more than 40 days. The condition is diagnosed through ultrasonography and laboratory tests.

The treatment of choice is removal of the ovaries and uterus ("spaying"), which is curative. If the dog is to be bred, administration of drugs that cause ovulation might resolve the condition; however, these dogs must be monitored closely for uterine disease.

### **Mastitis**

Mastitis is inflammation of the mammary gland(s) that occurs in dogs after giving birth. It is caused by a bacterial infection. Risk factors for developing mastitis include poor sanitary conditions, trauma inflicted by offspring, and whole-body infection. Mastitis may involve a single gland or multiple glands. Milk may be normal or abnormal in color or consistency. The affected glands may be hot and painful. If mastitis progresses to a generalized infection, signs of illness such as fever, depression, poor appetite, and lethargy may be seen. The mother may also neglect her puppies. In dogs with long term inflammation, the only sign may be failure for puppies to thrive. The disease is diagnosed based on the physical examination, the dog's medical history and evaluation of the dog's milk.

Veterinarian may test for bacteria to determine which antibiotic to use in cases of infective mastitis. Dogs that are dehydrated or in shock may require intravenous fluids. Warm compresses should be applied to the affected glands 4 to 6 times daily, and the puppies should be encouraged to nurse from these glands. An abscessed mammary gland should be lanced, drained, and treated as an open wound.

At the time of weaning, there may be an abundance of milk and glands that are warm, swollen, and painful to touch, but the dog should remain alert and healthy. Lactation can be diminished by returning to the amount of food and water intake that the dog consumed prior



to pregnancy. Warm compresses can be applied, but care should be taken to not stimulate the glands (which stimulates milk production). Appropriate food and water must be provided for the puppies.

### **Metritis**

Metritis is inflammation of the uterus that occurs after pregnancy. It is usually caused by bacterial infection. Factors such as prolonged or difficult delivery and retained fetuses or placentas may cause metritis. *Escherichia coli* bacteria are a common cause of infection of the uterus. The primary sign of infection is a pus-like discharge from the vulva. Female dogs with metritis are usually depressed or feverish, have a reduced appetite, and may neglect their offspring. Pups may become restless and cry incessantly. The infection is diagnosed through physical examination, x-rays, ultrasonography, and laboratory tests.

Treatment includes administering fluids, supportive care, and antibiotics. Medications can also be given to expel a retained fetus or placenta. Your veterinarian will recommend if and when spaying is appropriate for dogs with metritis.

### **Ovarian Remnant Syndrome**

Ovarian remnant syndrome is caused by ovarian tissue that was left behind when a dog was spayed. This is a complication of the surgery. The most common signs are those of heat (swelling of the vulva, flagging, and standing to be mounted). Laboratory tests are done to confirm the presence of functional ovarian tissue. The ovarian tissue is removed by surgery.

### **Pyometra**

Pyometra is a bacterial infection of the uterus due to hormonal changes in unspayed dogs. It is reported primarily in dogs more than 5 years old, and tends to occur 4 to 6 weeks after estrus. Pyometra can occur due to administration of estrogen- or progesterone-based medications.

The signs are variable and include lethargy, poor appetite, increased thirst and urination, and vomiting. When the cervix is open, a discharge of pus, often containing blood, is present. When the cervix is closed there is no discharge and the large uterus may cause abdominal enlargement. Signs can progress rapidly to shock and death. The infection is diagnosed by physical examination, determination of the nature of the discharge, ultrasonography, x-rays, and laboratory and blood tests.

Removal of the ovaries and uterus ("spaying") is the recommended treatment in most cases. For younger animals that are not seriously ill and that will be bred in the future, antibiotics, intravenous fluids, and prostaglandin can be administered. However, medical treatments carry higher risk in dogs with a closed cervix because the infected uterus may burst.



Animals should be re-examined 2 weeks after completion of medical treatment to ensure complete emptying of the discharge from the uterus. Dogs with a history of pyometra should be bred on every heat cycle after treatment, as pyometra will eventually recur. Affected dogs should be spayed as soon as their breeding life is over.

### **Subinvolution of Placental Sites (SIPS)**

Subinvolution of placental sites is a disorder that occurs after pregnancy as a result of abnormal repair of the lining of the uterus (where the placenta was attached). After giving birth, the uterus slowly returns to its normal size in a process called involution. Normally, a bloody discharge accompanies this process for up to 16 weeks after birth. In some dogs, the discharge lasts much longer. The condition is most common in dogs less than 3 years old after their first litter. There are no signs except for discharge from the uterus that contains blood. Blood loss is usually not severe with this condition. It resolves on its own and usually does not recur. Spaying is curative but it is not necessary unless the bleeding is severe.

### **Vaginal Overgrowth (Vaginal Prolapse, Vaginal Hyperplasia)**

In vaginal overgrowth, the vaginal tissue becomes swollen during estrus (heat). The swollen vaginal tissue may be seen through the vulva. This condition is caused by estrogen and is most common in young dogs. The disease is diagnosed through the medical history, physical examination, and laboratory tests. Vaginal overgrowth resolves on its own as soon as the estrogen-producing phase of the cycle is over. However, it usually recurs with every heat. If it is not causing a problem, treatment may not be necessary.

Treatment may include daily cleansing of the affected area, prevention of trauma, and antibiotic ointment. An Elizabethan collar (a large funnel-shaped collar that prevents the dog from licking itself) may be necessary to prevent self-trauma. The condition often interferes with breeding, but these dogs may be bred by artificial insemination. Spaying cures the condition in dogs that will not be bred in the future.

### **Vaginitis**

Vaginitis, or inflammation of the vagina, may occur before puberty or in mature dogs. It is especially common in puppies. Vaginitis is primarily due to bacterial infection. Viral infections, vaginal foreign bodies, or cancer may also cause vaginitis. The most common sign is discharge from the vulva. Animals may also lick the vulva. Affected dogs may urinate frequently and attract males, but they otherwise appear healthy. The disease is diagnosed through physical examination, endoscopy, x-rays, ultrasonography, and laboratory tests. Vaginitis in puppies usually resolves on its own when the pup has reached physical maturity. In the case of a persistent infection, antibiotics are administered.



Several reproductive diseases can affect male dogs. This section discusses the most common of these disorders.

### **Cryptorchidism**

Cryptorchidism is a failure of one or both testicles to descend into the scrotum. It is the most common disorder of sexual development in dogs. The condition has a genetic basis and can be inherited from either parent. If both testicles are affected, the dog is sterile. Because the retained testicles still produce male hormones, these animals have normal mating behavior and sexual characteristics. If only one testicle is retained (unilateral cryptorchidism), the dog can still mate normally, as the one normal testicle will produce normal sperm. Because the condition is inherited, cryptorchid dogs should not be used for breeding. This condition occurs in all breeds but is commonly seen in the Toy and Miniature Poodle, Pomeranian, Dachshund, Chihuahua, Maltese, Boxer, Pekingese, English Bulldog, Miniature Schnauzer, and Shetland Sheepdog. Affected animals should be neutered due to an increased risk of developing testicular cancer.

### **Inflammation of the Testes and Epididymis**

Short-term inflammation of the testis or epididymis may be caused by injury, infection, or twisting (testicular torsion). Signs are pain and swelling of the testes, epididymides, or scrotum. There may be wounds or other abnormalities in the scrotal skin. The disease is diagnosed by physical examination, ultrasonography, and laboratory tests. Because the condition is painful, sedation or anesthesia may be necessary for diagnosis.

Treatment is difficult unless the cause of the inflammation can be identified. The outlook is unknown, even with prompt treatment, because inflammation can cause permanent damage. Application of cool water packs may decrease testicular damage caused by inflammation. If there is a bacterial infection, antibiotics will be administered. If the cause is an immune disorder, medications that suppress the immune system may be administered but are often unsuccessful and can perpetuate infertility. When maintaining fertility is not important, castration is a reasonable treatment choice for inflammation of the testes or epididymis due to any cause.

Long term inflammation of the testis or epididymis may follow short-term inflammation, although in some cases there is no history of testicular inflammation. Tumors may also be present. Many dogs do not have any signs of the disease except for infertility; however, decrease in size or softening of the testes may be present. Non-inflammatory causes of this disease include previous exposure to excessive pressure, heat, cold, or toxic agents. Hormonal causes are also possible. The diagnosis and treatment is as described above for the



short-term condition. The outlook with longterm inflammation is poor.

### **Inflammation of the Penis and Prepuce (Balanoposthitis)**

Balanoposthitis is inflammation of the penis or preputial cavity (the skin on the dog's belly that covers the penis). Mild balanoposthitis is present in many sexually mature dogs and it resolves spontaneously without any treatment. There are several causes of more severe balanoposthitis, including allergies, trauma, foreign objects, bacterial infection, cancer, urinary tract stones, and phimosis (a condition in which the prepuce cannot be drawn back to expose the penis). The most common sign is yellow-green discharge at the tip of the penis or prepuce. Excessive licking of the prepuce may also be seen. Swelling of the prepuce and pain are rarely present except in cases of trauma or foreign objects. The disease is diagnosed by physical examination and laboratory tests. Sedation or anesthesia may be necessary.

Treatment includes correcting any predisposing factors, clipping long hair away from the opening of the prepuce, and thorough flushing of the preputial cavity with a mild antiseptic or sterile saline solution. In the case of a bacterial infection, your veterinarian may prescribe an antibiotic. Neutering will diminish, but not eliminate, preputial secretions.

### **Paraphimosis**

Paraphimosis, or the inability to completely retract the penis into the preputial cavity, usually occurs after erection. It is seen most often after semen collection or breeding. The skin at the preputial opening traps the extruded penis, impairing blood circulation. Other causes of paraphimosis include a constricting band of hair at the preputial opening, a small preputial opening, foreign material around the penis, or other trauma to the penis. Paraphimosis is a medical emergency because the exposed penis quickly becomes swollen (due to accumulation of fluid), dry, and painful. If recognized early, before severe swelling and pain develop, paraphimosis is easily treated.

The treatment consists of gentle cleansing and lubrication of the exposed penis. The penis is replaced inside the prepuce and the swelling resolves once circulation is restored. More advanced cases of paraphimosis may require additional treatments or surgery to correct.

### **Priapism**

Priapism is a persistent erection that is not due to sexual stimulation. It is diagnosed by physical examination. Partial paraphimosis can also result. Priapism can be caused by neurologic dysfunction, drugs, blood vessel abnormalities, masses on the penis, trauma, or an unknown cause. If blood circulation is blocked, it is a medical emergency.

### **Phimosis**

Phimosis is the inability to expose the penis and may be due to an abnormally small



preputial opening. It may be hereditary or acquired as a result of trauma, inflammation, or bacterial infection. The signs are variable. Usually, the problem is unnoticed until the dog attempts to mate and is unable to copulate. Diagnosis is established by physical examination of the prepuce and penis.

Treatment depends on the severity of the phimosis and the intended use of the dog. If the dog is not used for breeding, treatment probably is not needed, although neutering could be considered to prevent arousal. Surgery to enlarge the opening of the prepuce can be performed for breeding dogs or those that have inflammation or difficulty urinating.

### **Disorders of the Prostate**

The prostate gland is located within the pelvis behind the bladder. The prostate gland is not required for sperm production, but it is important for successful breeding. The prostate gland provides the major part of the fluid in the ejaculate and is important in nourishing the sperm cells and increasing their movement.

Diseases of the prostate gland are common in dogs that have not been neutered, especially enlargement of the prostate (benign prostatic hyperplasia). Other prostate diseases, including bacterial infection, abscesses, cysts, and tumors, are less common and can be seen in neutered males. These disorders cause enlargement of the prostate gland and can cause straining when defecating, blood in the urine, repeated urinary tract infections, and pain. Additional signs, such as fever, malaise, poor appetite, stiffness, and pain in the belly, are often due to bacterial infections or presence of tumors. Prostatic diseases are diagnosed by physical examination, rectal examination, x-rays, ultrasonography, and blood and semen tests.

### **Enlargement of the Prostate (Benign Prostatic Hyperplasia)**

Enlargement of the prostate is the most common prostatic disorder. It is caused by male hormones. It is found in almost all unneutered dogs over the age of 6 years. There may be no signs, or straining to defecate, blood in the urine, or preputial discharge may occur. Neutering is the preferred treatment. Reduction in the size of the prostate usually follows within a few weeks of the surgery. In dogs used for breeding, medication to decrease the size of the prostate may be helpful.

### **Prostatitis**

Prostatitis is inflammation of the prostate gland. It is usually due to bacterial infection and can result in an abscess. Longterm inflammation can also occur because of prostate enlargement (see above). Sudden prostatitis (acute prostatitis) often causes malaise, pain, and fever. Dehydration and shock may occur in severe cases of prostatic abscesses. The disease is diagnosed by physical examination, x-rays, blood and urine tests, and examination of prostatic



fluid. Longterm bacterial prostatitis may cause no signs except for recurrent urinary tract infection. Sudden prostatitis is treated by administration of antibiotics and may require prolonged treatment. Intravenous fluids may be necessary in severe cases. Neutering should be considered after treatment for sudden disease. Longterm prostatitis will only resolve with treatment of benign prostatic hyperplasia, which involves neutering or medication to shrink the prostate. Antibiotics alone are usually ineffective for longterm cases.

### **Prostatic and Paraprostatic Cysts**

Large cysts are occasionally found within or near (paraprostatic) the prostate gland. The signs are similar to those seen with other types of prostatic enlargement and usually become apparent only when the cyst reaches a size sufficient to cause pressure on other organs. Large cysts may result in abdominal distention. Drug treatment is ineffective. The treatment of choice for large cysts is surgical removal. Neutering alone is unlikely to provide sufficient benefit but may be recommended after the cyst has been removed.

### **Prostate Cancer**

Prostate cancer is a serious, yet uncommon, disorder in dogs. Neutering does not protect against future development of prostate cancer in dogs. The signs are similar to those of other prostatic diseases. Pain and fever may be present. Furthermore, the cancer frequently spreads to other tissue and organs (metastasis). If the cancer invades the urethra, urination can be difficult or urine outflow can be blocked. Diagnosis is made using rectal examination, ultrasonography, biopsy, and other tests (such as x-rays) to look for evidence of metastasis. There is no effective curative treatment, but some medications may prolong survival time. Consultation with a veterinary oncologist (cancer specialist) is recommended.

