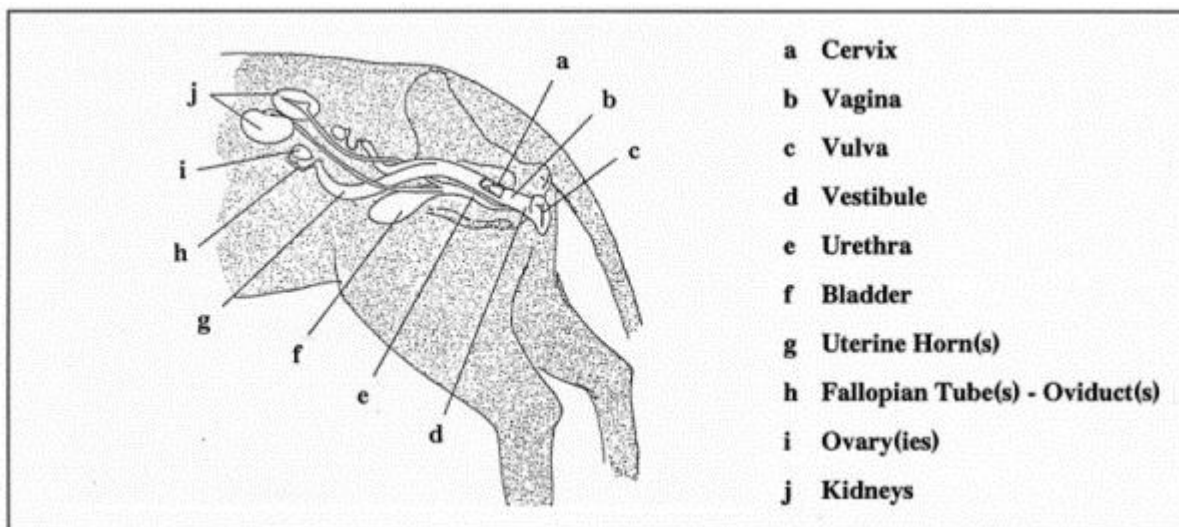


General Health - Reproduction in the Bitch

Genital System of the Female Dog



Genital System of the Female Dog

Stages of the Oestrus Cycle

Pro-Oestrus:

- First stage of the oestrus cycle.
- Usually lasts 7-10 days.
- Vulva swells, bloody discharge.
- Follicles in ovaries undergoing development and maturation.
- Bitch is attractive to male dogs, but doesn't permit mating.
- Pre-mating swab if needed is done at this stage - wait 3-4 days to allow the cervix to relax.
- Check that vaccination and worming are up to date.

Oestrus:

- Second stage of oestrus cycle.
- Usually lasts 4-7 days
- Discharge normally changes to straw coloured and the bitch will start to accept the male.
- Vulva displays maximal swelling and softening.
- When the ovarian follicles are mature they secrete sufficient oestrogen to cause a surge release of luteinising hormone from the pituitary gland.
- This stimulates progesterone secretion from the follicles and ovulation 24-48 hours later. Corpora lutea from the ruptured follicles and continue to secrete progesterone for the next 60 days.
- Serum progesterone can be measured and used to determine the time of ovulation. It should rise to above 16nmol/L(5ng) on the day of ovulation.

Di-Oestrus:

- • 3rd stage of ovulation.
- Lasts 4-7 days.
- Finished when vulval swelling and discharge disappear.
- Always begins 6 days after ovulation

* It should be noted that there is considerable variation within the oestrus cycle in bitches and that no two bitches are the same.



Vaginal Smears

The cells lining the wall of the vagina will change during the oestrus cycle and smears taken to detect these changes can be useful in determining which stage of the cycle a particular bitch is in. The changes in the cells is mainly influenced by oestrogen.

Serial smears taken every 2-3 days are required to detect oestrus and it is not possible to predict the time of ovulation with vaginal smears. It is however possible to determine when oestrus has finished and di-oestrus has begun and to retrospectively calculate the day of ovulation (6 days prior).

Breeding Management

In practice, matings are usually restricted to one or two matings usually on day 10-14 counting from the first observed day of bloody discharge. This method can be inaccurate.

Studies have shown that maximum litter size occurs when mating takes place two days after ovulation. Therefore **ideal breeding management** should involve either:

1. Detect first day of receptivity by the bitch (coincides with surge of luteinising hormone), and mate every second or third day until the bitch refuses further matings.
2. Determining the correct ovulation day by progesterone assay and breed 48 hours after ovulation.

Determining ovulation

- Rise in serum progesterone levels - mate 2 days after a rise in serum progesterone above 16nmol/L (5ng).
- Use data from previous cycle. Can calculate exact day of ovulation retrospectively with vaginal smears. Need to take a smear each day during oestrus and at the first appearance of di-oestrus count back six days. The day of ovulation usually remains fairly constant between cycles in a particular bitch but may change slightly as sge ages.
- Use data from previous litters. Interval from ovulation to whelping is a constant 63 days. If good records are kept noting date of onset of oestrus and day of whelping then you can count back 63 days to determine on which day of the oestrus cycle ovulation took place.

Cystic Endometrial Hyperplasia

The normal cycling bitch secretes progesterone for approximately 60 days following the onset of oestrus, whether or not she is pregnant. Prolonged or repeated progesterone influence causes cystic endometrial hyperplasia which is a thickening of the endometrium (inner lining) of the uterus.

The glands in the endometrium also become enlarged and secrete fluid which accumulates in the uterus. This can lead to problems with infertility and infection.

Chronic Endometritis

This is a low grade infection of the endometrium which can interfere with fertility by causing failure to support pregnancy and prevent implantation of the fertilised egg.

It is difficult to diagnose as affected dogs will appear outwardly healthy. Thickening of the uterine wall may be detected by x-ray or ultrasound. The only accurate way to diagnose this condition is by a surgically examining the uterus and taking a biopsy.



An effective treatment has not been found, but a few options are available:

1. Surgical curettage of the endometrium has been performed, but has not been that successful
2. Medical treatment with either prostaglandins or testosterone can be tried. Prognosis for return to fertility is poor.

Pyometra

This is a severe bacterial inflammation of the uterus which can develop rapidly into a very toxic condition. Toxaemia occurs through the absorption of toxins from increasing amounts of pus being produced by the bacterial infection.

Incidence is higher in bitches with shortened inter-oestrus intervals. False pregnancy, irregular cycles or lack of previous pregnancy do not increase risk of pyometra.

Symptoms

Usually occurs 1-4 weeks after completion oestrus. Lethargic, not eating, excessive drinking, may have vomiting and diarrhoea and abdominal distension. If the cervix is open (called an open pyometra) there will be a copious discharge, but if the cervix is closed (closed pyometra) there will be little or no discharge. When this occurs large quantities of pus will build up within the uterus and release toxins which will make the bitch very sick and can cause death if not treated quickly.

Treatment

This depends on the state of the bitch and her value as a future breeding possibility. If the cervix is closed then the only treatment option is ovariohysterectomy after stabilization with fluids and antibiotics. If the cervix is open and the bitch not too debilitated then medical treatment as an alternative to surgery can be tried (usually the younger bitches). This involves the use of Alizin (antiprogesterone) and prostaglandin (Lutalyse) injections to cause the uterus to contract and expel the pus.

Lutylase is given as a course of injections over 5-7 days. The side-effects caused include restlessness, panting, drooling, vomiting and increased heart rate. These effects usually last up to one hour and can be lessened by walking the bitch for 10 minutes. The effects of the drug last for 10 minutes..

Along with the prostaglandin injections a drug called miltophylline can be given to dilate the cervix further. Antibiotics are also required and a six week course is advised.

This treatment works in 80-100% of dogs. Some dogs need two courses of injections and this is indicated if discharge is still present 2 weeks after treatment or the uterine size has not decreased.

It is strongly recommended to breed at the next season to try and get the hormones "back to normal". Timing of the next season can be unpredictable as it can be early or late. Conception rate at the next oestrus has been reported as 40-80%. It is advisable to swab before mating.

Any older bitch that has been treated for pyometra should ideally be spayed, as her breeding life has basically ended.



Vaginitis

Puppy Vaginitis

This can occur in dogs prior to their first season, usually as a result of increased hormone levels. Vaginal discharge is usually scant and clear to bloody in colour. Puppies may show increased licking of vulva and increased frequency of urination.

Treatment depends on the severity of the vaginitis. Most cases will resolve on their own at or after the first oestrus so if the discharge is mild treatment may not be necessary. If the discharge is pussy or the dog displays discomfort, then a 4 week course of antibiotics is indicated. A swab should be taken to determine the best choice of antibiotic.

Adult Vaginitis

This can occur in bitches after their first season. They show a vaginal discharge which can attract males, increased licking at vulva and sometimes increased frequency of urination. To differentiate between vaginitis and the more serious pyometra other signs are taken into account (eg appetite and general condition) along with abdominal palpation.

Treatment involves a 4 week course of antibiotics, again after a swab is taken. The bitch should also be checked for any predisposing causes such as strictures in the vagina or infolding of the vulva.

False Pregnancy

The symptoms of false pregnancy are due to the effects of the hormone prolactin. This is released when there is an abrupt drop in serum progesterone, which will occur normally at birth in the pregnant bitch, but may also occur in the non-pregnant bitch after 60 days when the corpus luteum stops producing it.

Symptoms include:

- mammary gland development and secretion
- behavioural changes - mothering, can be snappy
- uterus may be slightly enlarged
- may have a clear vaginal discharge
- may be lethargic and have poor appetite

These signs will usually resolve without treatment. If the bitch is uncomfortable alternate hot and cold compresses can be applied to the mammary glands.

Antiprolactin drugs can reduce symptoms of false pregnancy by stopping the production of prolactin.

Use of Hormones

A number of synthetic hormones have been produced for a number of different purposes. There are two that have been widely available, but should be avoided. These are the progestogens (Ovarid, MPA) and stilboestrol.

The only safe drug for mismatings is Alizin.



Foetal Resorption

A question was asked about resorption of fetuses during pregnancy. This can occur as a result of either endometrial disease, failure of the corpora lutea to produce progesterone, infectious disease, foetal defects, or other hormonal defects of the bitch (eg hypothyroidism). Progesterone levels can be measured in di-oestrus to determine if low progesterone is the cause of the resorption and this can be treated by supplementing the bitch with progesterone.

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