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Common Abnormalities and Reproductive Diseases in Mares

Infertility in the mare often can be directly associated with one or more of the common diseases or conditions affecting the reproductive tract. These diseases may result in fertilization failure, early embryonic loss, or abortion.

GENITAL PROBLEMS RESULTING IN INFERTILITY

Pneumovagina

Pneumovagina (windsucking) refers to aspiration of air into the genital tract. It is the most common condition predisposing mares to genital infections and infertility. In the normal mare, the vulva should be at a nearly vertical angle, with the vulvar lips firm and in direct apposition to each other. In "windsucking" mares, the animal frequently has a flat croup, sunken anus, underdeveloped vulvar lips, and a slanted or more horizontal angle to the vulva. Lacerations or scarring due to foaling or breeding injuries may also allow air to be aspirated into the vagina. Debris, feces, and air aspirated into the vagina cause persistent contamination of the reproductive tract. Windsucking may occur in some mares only during estrus or while being exercised. Suturing the vulvar lips (called a Caslick's operation) is usually recommended on mares with this condition.

Lacerations

Lacerations or tears of the vulva, vagina, cervix, and supporting tissues are most frequently caused at the time of foaling and less commonly during breeding. These conditions are serious because bacterial contamination of the reproductive tract often results. These injuries often result in pneumovagina, vaginitis (inflammation of vagina), cervicitis (inflammation of cervix), metritis (inflammation of uterus), and infertility.

Fetal Resorption

Fetal resorption refers to loss of an early pregnancy before it can be recognized as an abortion. This is usually referred to as embryonic death and is apt to occur during the first 90 days of gestation. Fetal resorption rates have been reported as high as 30 percent in some horse herds. In this condition the embryo dies and is sloughed or resorbed from the uterus. Most mares will not exhibit a regular return to heat when undergoing fetal resorption. Possible causes of early embryonic death include: defective or aged ova or sperm cells, infections of the genital tract, twinning, hormonal imbalance, genetic defects in the embryo, improper nutrition, and influenza virus infection.

Twinning

The mare usually releases one ovum (egg) during each estrus period. Multiple ovulations have been reported to occur in 10-25 percent of all ovulations for light horse mares. In early embryonic life, 80-95 percent of twin pregnancies are lost. At foaling only 20 percent of twins are born alive. The condition of twin pregnancies contributes to pregnancy wastage and infertility.



REPRODUCTIVE DISEASES

BACTERIAL INFECTIONS

Streptococcus zooepidemicus

Streptococcus zooepidemicus (strep infections) is the most common micro-organism found in the infected reproductive tract of infertile mares. It is found in 10 to 20 percent of equine abortions and about 25 percent of barren mares. Infection due to this micro-organism is commonly seen following injuries to the reproductive tract after foaling or breeding, poor sanitation at the time of breeding, foal heat breeding, other poor management practices, and in mares with pneumovagina. The micro-organism is frequently found as a contaminant on the vulva of the mare and the penis and prepuce of the stallion. Good management and sanitation practices will decrease the incidence of this disease.

Other Bacterial Infections

Other bacterial infections include: *Klebsiella pneumoniae*, *Escherichia coli*, *Corynebacterium equi*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa*. These micro-organisms are associated with infertility less commonly than *Streptococcus zooepidemicus* but do occur frequently enough to be a concern. These micro-organisms can cause inflammation of the vagina (vaginitis), cervix (cervicitis), uterus (metritis), and oviducts (salpingitis). Mares are usually predisposed to these conditions due to poor nutrition, unsanitary foaling practices, poor breeding hygiene, pneumovagina, and lacerations or injuries at foaling. Improving management practices will decrease both the incidence and severity of bacterial infections.

Leptospirosis

Leptospirosis has occasionally been known to cause abortion in the last trimester of pregnancy in the mare. The causative agent is usually *Leptospira pomona*. Abortion usually occurs 1 to 3 weeks after infection during the seventh to the eleventh month of pregnancy. Vaccination is recommended for horses exposed to leptospirosis.

VIRAL INFECTIONS

Rhinopneumonitis

Rhinopneumonitis is one of the most common abortion diseases of the mare. It is caused by equine Herpes virus 1. Two forms of rhinopneumonitis are seen: an upper respiratory disease in all horses and an abortion disease in mares. The respiratory form of the disease may affect horses of any age, but young horses from 4 to 8 months are most commonly affected. The virus is highly infectious and contagious and is spread predominantly by inhalation. The abortion form of the disease in mares follows by several weeks the respiratory form seen in foals. The respiratory disease is frequently unobserved in mares that abort. Abortion usually occurs in the eighth to the eleventh month of gestation. Complications following rhinopneumonitis abortion are not common. Immunity to this viral infection is not permanent. Immunity received from natural infection or vaccination may last one to two years. Rhinopneumonitis vaccine is available but vaccination must be carried out routinely.

Equine Arteritis

Equine arteritis is a less common viral infection and causes a general respiratory disease with abortion. This virus causes inflammation of the smaller arteries resulting in disease and blockage of the blood vessels to the affected areas. Abortion occurs 1 to 14 days after the onset of illness. Abortion usually occurs in about 50 percent of the affected mares from the fifth to the tenth month of gestation. A vaccine for this disease is not currently available, but immunity does develop following natural infection.

EIA (Equine Infectious Anemia)

EIA, equine infectious anemia (Swamp Fever), is usually not considered a reproductive disease. Mares positive for EIA usually carry the fetus to term. Mares infected with this virus that do abort are thought to do so because of the anemia of the mare rather than the virus affecting the foal or placenta. There is no vaccination currently for EIA.

Coital Exanthema

Coital exanthema is a virus infection that causes pox-type lesions on the penis of the stallion and vulva of the mare. The disease may be a cause of temporary infertility in both the mare and stallion due to the pain caused by the pox lesions and elicited during natural mating. Permanent immunity does not develop from natural infection. The disease may recur in the same breeding season. A drying agent applied locally may aid in speeding recovery from the disease.

SUMMARY

Many common conditions such as pneumovagina, indiscriminate foal heat breeding, unsanitary foaling environment, improper breeding hygiene, poor nutrition, and improper timing of service often predispose mares to reproductive tract diseases resulting in fertilization failure, early embryonic death, and abortion. Proper hygiene and good management practices, careful examination and effective treatment can control many genital infections that cause the mare's infertility.

To improve mare reproductive health:

1. Prevent injuries to the reproductive tract of the mare at foaling.
2. Observe good sanitation at foaling.
3. At each natural service or artificial insemination:
 - The mare should be adequately restrained to prevent injury to the mare, stallion, and handlers.
 - The tail of each mare to be bred should be wrapped with a clean cloth or plastic tail wrap prior to each service.
 - Clean warm water should be used to wash each mare and stallion.
 - Wash, rinse, and dry the vulva, anus, and surrounding region of the mare. A mild soap should be used with sterile cotton or clean paper towels.
 - Wash, rinse, and dry the entire erect penis of the stallion before each mating, using a mild soap and sterile cotton or clean paper towels.
4. Prevent and control reproductive diseases.
5. Have a skilled veterinarian conduct regular and thorough examinations on all mares and stallions.
6. Consult a skilled veterinarian to assist you in your breeding program.

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