

What's New at the Clinic?

Every year over the summer months we host final year veterinary students as part of their externship program. This year we hosted D'Arcy, Zenya, Tori, and Kathryn. We truly appreciate your contribution to their education by offering them words of wisdom and also for allowing them to observe us working with your animals and practice their clinical skills while at your farms. We hope they had a wonderful summer!

For those of you with horses enrolled in our Equine Wellness Plan, if you haven't brought in your second summer fecal egg count, please feel free to do so. The result of this count will determine if any deworming is warranted. The samples can be brought in anytime during our office hours.

Starting in July, Dr. Harry Morrison cut back his hours to two days per week. In August, Dr. Brittany Scace got married and will be away for several months before returning to the practice. We wish her and her husband all of the best! In August, Dr. Allison Doherty returned to work part-time. She is enjoying seeing everyone again!

We recently acquired a blood machine which allows us to perform some equine blood testing at the clinic. We currently can run equine complete blood counts (CBC) and chemistry profiles. These tests provide us with information about red and white blood cell counts, protein levels, muscle enzyme activity, kidney and liver function, and more. We are excited because this will allow us to run tests on evenings and weekends! We will also be able to run bovine electrolyte panels in the near future, allowing us to report calcium and phosphorus results more quickly.

We are busy planning a fall equine client education seminar on the topic of equine nutrition. Vern Avery, Clinical Nutritionist for Brooks Feeds, will be speaking about nutrition basics and developing therapeutic diets for different types of horses. The seminar will be held on Wednesday November 27th at the Scugog Recreation Centre at 7pm.

Abortion in Large Animals

Abortion in livestock is unfortunately an inevitable event on farms. Abortion occurs when a pregnancy is terminated after the basic organs have developed in the fetus but it is expelled before it could survive. This is different from stillbirth, which occurs when a dead full-term fetus is born.

Causes of pregnancy loss in large animals can be frustrating to work up. However, doing so is recommended because of the possible impacts on a farm wide level. It is also important in ruminants as many of the infectious causes of abortion have implications for their human caretakers as some of these diseases are zoonotic, meaning that humans can become infected from affected animals. This can be of particular importance to pregnant women as some of these conditions can cause pregnancy loss in humans if a pregnant woman comes in contact with the placenta or birthing fluids of an affected animal. A certain amount of loss is expected in a herd/flock. If there seems to be an increase in abortions then an investigation is warranted.

If an animal aborts and you are interested in pursuing a work-up, it is best if the post-mortem is performed in a timely manner to prevent the tissues from undergoing autolysis making it nearly impossible for the lab to determine the cause of the abortion. The veterinarian will examine the aborted fetus and likely will submit samples from it, as well as sections of placenta to the lab for further analysis. The veterinarian will also collect a detailed history and may examine the dam/collect blood samples.

There are countless causes of abortion in livestock species so we will just cover some of the more common ones.

Infectious Causes of Abortion

Infectious causes of abortion include bacterial, viral, fungal and parasitic agents.

Equine

In horses, Equine Herpesvirus-1 (EHV-1) is the most common viral cause of abortion. This virus is spread via nasal secretions, reproductive tract secretions, and contact with the placenta or aborted fetus. Abortion caused by EHV-1 generally occurs after 7 months

gestation. A vaccination is available to aid in the prevention of EHV-1 infections with mares receiving the vaccination at 5, 7, and 9 months gestation.

Equine Viral Arteritis (EVA) causes high rates of abortion in populations that have not been exposed prior. The virus is usually spread by persistently infected stallions and causes abortion with no fetal lesions.

Bacterial placentitis is probably the most common infectious cause of abortion. There are a number of agents that can be involved. Placentitis causes premature udder development, increased uteroplacental thickness, and sometimes vaginal discharge. Abortion occurs as the result of placental dysfunction and separation if the placentitis goes untreated.

Bovine

In cattle, *Neospora caninum* is a common parasitic cause of abortion. Cattle become infected when they ingest feed contaminated with dog or coyote feces containing *N. caninum* oocysts. If a cow is exposed during pregnancy and abortion does not occur, her offspring can be congenitally infected. These congenitally infected heifers/cows can then transmit the disease transplacentally to their offspring. There is no treatment for *Neospora caninum*, and the main method of control is to prevent contamination of feed by dog/coyote feces.

Leptospirosis is a bacterial illness caused by any of a number of *Leptospira* serovars (strains).

Depending on the strain, susceptible animals can become infected from rodents, dogs, pigs, other cattle, etc...The clinical signs seen depend on the age an animal becomes infected, which strain is involved, and the herd's resistance/immunity to leptospirosis. Leptospirosis can cause abortion at any stage of gestation but mostly commonly causes late gestation losses. Lepto infections also cause increased retained placentas, lowered milk production, and weak calves. Reducing exposure to feed and water contaminated by rats, dogs, etc...and vaccinating your herd are the primary methods of prevention. It is important to note that leptospirosis is a zoonotic condition.

Bovine Viral Diarrhea (BVD) is a virus responsible for a number of reproductive problems. Depending on when a cow is infected during her gestation will dictate which clinical signs are seen, and range from early embryonic loss, the birth of persistently infected (PI) calves, the birth of calves with severe congenital deformities or late term abortion or stillbirth. PI calves are problematic because they continually shed the virus throughout their lives causing it to spread amongst the herd. The main preventative strategies involve the use of vaccination programs and identifying/removing PI animals.

Infectious Bovine Rhinotracheitis (IBR) is caused by Bovine Herpesvirus-1 (BHV-1) and is a very contagious respiratory virus that can also cause abortion in cattle. Several highly effective vaccines are available to aid in prevention of this disease.

Small Ruminants

The bacterial infections *Chlamydophila abortus/Chlamydia psittici* (enzootic abortion of ewes) and *Campylobacter*

jejuni (vibriosis) cause late gestation abortions or stillbirths in small ruminants. Treatment with tetracycline products during outbreaks of either of these conditions may reduce the incidence of abortion.

Coxiella burnetii (Q fever) is another bacterial cause of late gestation abortion and stillbirths in small ruminants. It can spread quite rapidly causing up to 50% of the flock/herd to be affected. A diagnosis can only be confirmed by submitting the placenta for testing as the infection only affects the placenta and causes no fetal lesions.

Toxoplasma gondii is a parasitic infection caused when susceptible ewes/does ingest feed contaminated with cat feces containing *Toxoplasma* oocysts. When the exposure to the parasite occurs dictates what the client will see. Infection of naive females early in pregnancy results in fetal resorption, whereas mid to late gestation infection results in abortions and stillbirths. Females that have been infected develop lifetime immunity and are unlikely to experience future Toxoplasmosis abortions. Preventing ingestion of feed contaminated with cat feces is one of the most important preventative measures.

The conditions described above have some distinguishing features based on the appearance of the aborted fetuses (with the exception of *Coxiella burnetii*) but they are best differentiated by submitting samples from aborted fetuses/placenta for histopathology and other testing at the lab. *Chlamydophila abortus*, *Coxiella burnetii* and *Toxoplasma gondii* infection are zoonotic diseases, and as such pregnant women should avoid working with lambing/kidding females particularly if there are animals experiencing abortions.

Non-Infectious Causes of Abortion

In horses the most common non-infectious cause of abortion is twinning. Mares that are bred will ideally have an ultrasound exam 14 days after ovulation to identify the presence of a twin and to allow for one of the twins to be reduced, as the mare's placental capacity is unable to support twins to term. Umbilical cord torsion can occur when the umbilical cord gets wrapped around the legs of the fetus which impedes blood flow in the cord and causes death of the fetus.

In cattle and small ruminants, some of the more common non-infectious causes of abortion include: vitamin or mineral deficiencies, heat stress, and toxins. Trauma is an uncommon non-infectious cause of abortion in ruminants.

Congenital defects can occur in horses and ruminants and usually they result in early embryonic death, however sometimes the losses occur later in pregnancy.

Sources:

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