

CAUSES OF ABORTION IN EWES

مسببات الأجهاض في النعاج

Assistant Professor Dr. Hayder Badri Abboud

الاستاذ المساعد الدكتور حيدر بدري عبود

By

Kamaal Abd_Al Salam Hamza

خمائل عبد السلام حمزة

Fifth Year 2014-2015

2014-2015 المرحلة الخامسة

Abortion in Ewes

summary

- Many infectious causes of abortion can also infect humans (zoonotic infection)
- An abortion rate in excess of two per cent is suggestive of an infectious cause and veterinary investigation is essential
- All aborted ewes must be isolated immediately
- Aborted material and infected bedding must be removed and destroyed to prevent spread of disease on your farm
- Maintain a closed flock wherever possible
- Purchased all flock replacements as maiden sheep whether ewe lambs or gimmers
- Never buy old pregnant ewes - they are seldom a bargain and always a great disease risk
- The cost of abortion is ranges from £20 to £65 per aborted ewe

- Vaccinate all flock replacements against EAE and Toxoplasmosis (costs around £1 per pregnancy)
- All feed must be stored in vermin-proof bins
- heep should be managed in clean environments
- Water should be supplied from a mains supply with ponds and surface water fenced off

If possible pregnant sheep should be managed separately from cattle.

Diagnosis of the cause(s) of abortion

The minimum requirement for laboratory submissions for abortion diagnosis include the fetus(es) or fetal stomach contents, a piece of placenta, and a maternal serum sample collected by a veterinary surgeon as part of their investigations. While the first submission may identify a recognised cause, it is important to continue collecting aborted material during the outbreak as more than one agent may be present within the flock and such knowledge is essential when formulating treatment, control and prevention strategies.

COMMON CAUSES OF ABORTION

Non-infectious

• Stress and habitual abortion
 Enzootic abortion of ewes, *Toxoplasma gondii* and *Campylobacter* species cause over 70 per cent of abortion outbreaks in the UK. also brucellosis rift valley fever and wesselbron disease

Chlamydial abortion, *Chlamydia abortus*,

enzootic abortion of ewes (EAE),

Pregnant women are at serious risk from *C. abortus* infection (zoonotic infection). Despite the availability of a highly efficacious vaccine, EAE is still the main cause of ovine abortion in the UK. Disease is transmitted by ingestion following exposure of susceptible sheep to high levels of infected uterine discharges and aborted material. Infection does not result in abortion in that pregnancy unless the ewe is more than six weeks from her due lambing date rather infection remains latent in the sheep until the subsequent pregnancy then causes abortion.

Infection typically results in the abortion/birth of fresh dead and/or weak lambs during the last three weeks of gestation. The ewe is not sick and

may only be identified by a red/brown vulval discharge staining the wool around the tail/perineum, and a drawn-up abdomen. Live lambs rarely survive more than a few hours despite supportive care. Whole flock long-acting oxytetracycline injection (20mg/kg) may reduce the number of abortions from *C. abortus* infection, but such treatment cannot reverse

placental damage with the result that lambs are carried closer to term but remain weak at birth with consequent high mortality. From a practical standpoint, while such antibiotic treatment may not save the lambs of an infected sheep, it allows healthy lambs to be fostered onto ewes which abort much closer to term and consequently have reasonable udder development and sufficient milk to nurse a single (male) lamb. In common with all infectious causes of abortion, aborted ewes must be isolated and aborted material and infected bedding removed and destroyed. Ewes that give birth to dead/weak full-term lambs should also be isolated. Lambs fostered on to aborted ewes should not be retained for future breeding. Freedom from *C. abortus* infection is best achieved by maintaining a closed clean flock with strict biosecurity measures although there have been rare situations where infected material has been transmitted between neighbouring farms by birds/foxes. Various accreditation schemes are operating which offer breeding female replacements from flocks monitored free of *C. abortus* infection. Vaccination offers an excellent means of control for farms buying breeding replacements from non-accredited sources, and in those flocks with an endemic *C. abortus* problem. Vaccination of sheep already infected with *C. abortus* will not prevent all abortions but can reduce the incidence. The "gold standard" would be to purchase

accredited stock and vaccinate them against *C. abortus*(1)

- **Enzootic abortion (chlamydiosis)** is a contagious disease in sheep and goats. It is caused by organisms called *Chlamydia psittaci* or other strains.

- It occurs country wide in South Africa, and may be found in the intestines of healthy sheep.

This organism can also cause disease conditions in several other animal species, and can even cause abortions in pregnant women who handle sick sheep or lambs.

What are the signs of enzootic abortion?

- The ewe shows no signs of illness.

- Flocks infected for the first time may have an incidence of up to 70% of abortions.
- Abortions can occur as early as 3 months, but the foetus is then usually resorbed.
- Ewes may abort in the last month of pregnancy.
- They may give birth to small, weak lambs that die shortly after birth.
- Spots of blood above the udder and on the hocks of the ewe are visible and may be the only sign of abortion.
- Poor lambing percentage is recorded.
- It is unusual for the same female animal to abort twice.³

Treatment

- The organism can be treated with prolonged, high doses of certain antibiotics, but this is usually neither practical nor economically feasible.
- Speak to your animal health technician or state veterinarian for help.

Prevention

- Because of lamb deaths and the poor growth of lambs that do not die, it is essential to vaccinate. Oil-based, inactivated vaccine is produced by Onderstepoort Biological Products (OBP) to prevent abortions caused by chlamydial infection.
- Pregnant ewes can safely be inoculated, if necessary.
- It is essential to vaccinate before the breeding season, because the vaccine will not give protection against abortion once the foetus has been infected.
- The ideal time is 4 to 6 weeks before the breeding season.⁽²⁾ **Toxoplasmosis** People with an immunosuppressive illness are at risk of illness. Infection of susceptible women during pregnancy can result in infection of the baby which may cause serious eye and brain damage. **Toxoplasmosis** results from infection of susceptible sheep with the protozoan parasite *Toxoplasma gondii*. The sexual cycle takes place in cats while the asexual cycle can occur in a range of species including sheep. Infection during early pregnancy may be manifest as

embryo/early fetal loss with an increased number of returns to service after an irregular extended interval or an increased barren rate, often above 8 to 10 per cent. Often the highest number of barren sheep is in the youngest age group. Toxoplasma infection during mid pregnancy results in abortion or production of weakly live lambs near term often with a small mummified fetus. The mummified fetus has a dark brown leathery appearance and is about 10 cm long

Diagnosis Diagnosis of toxoplasmosis is usually based on identification of specific changes in the placenta in combination with the detection of high levels of antibodies in ewe blood. Antibody may also be present in the fetal fluids and can also be detected in newborn lambs before they have sucked colostrum. Blood sampling of the ewe alone is not sufficient as a positive result merely indicates past infection not that the current abortion is due to toxoplasmosis.

Management/Prevention/Control measures All sheep feed should be stored in vermin-proof facilities to prevent contamination by cats and other vermin. Vaccination provides excellent immunity to natural infection and should be administered at least three weeks before the breeding season. A should be taken when administering the vaccine; the detailed safety instructions provided by the manufacturer should be followed closely. The vaccine costs £3 per dose but as a single vaccination effectively provides lifelong immunity this amounts to a cost of 50 to 60 pence per pregnancy.

Campylobacteriosis

Campylobacter fetus subspecies fetus and Campylobacter jejuni are common causes of abortion, particularly where sheep are managed intensively leading to heavy contamination and unhygienic environments during late gestation. The **main source of infection** is purchased carrier sheep. The common presentation is abortion during late gestation although some lambs are carried to full-term and are born weak and succumb soon after birth. All aborted ewes must be isolated immediately and the main flock moved to other accommodation/pasture whenever possible.

Treatment options are limited because infection has already spread rapidly through the group by the time the first abortions are recognised.

Management/Prevention/Control measures Sheep should be managed in clean environments and not subjected to unhygienic conditions especially during late gestation. Particular attention should be paid to the feeding troughs/areas. Purchased sheep must be managed as a

separate group until after lambing. Following infection, ewes are immune to further challenge and will not abort.

salmonella Abortion Salmonella Montevideo, Salmonella Dublin and Salmonella Typhimurium have been associated with abortion and death in pregnant ewes. Sheep may simply be found dead with rotten lambs still present in the womb. There are many potential sources of salmonellae in a group of sheep including contaminated feedstuffs and water courses, sewage effluent overflow, carrier cattle, and carrion. All feed must be stored in vermin-proof bins but this is rarely achieved on many farms. Wherever possible, water should be supplied from a mains supply with ponds and surface water fenced off. If possible pregnant sheep should be managed separately from cattle. There is a significant zoonotic risk from suspected/confirmed cases of salmonellosis, so it is essential that strict personal hygiene methods are used during and after handling sick sheep:

- Minimise the number of people with contact with such sheep.
 - Remove and disinfect outer clothing after handling.
 - Wash and clean thoroughly hands, arms and face after handling.
- Whole group long-acting oxytetracycline injections during an outbreak of salmonellosis in sheep. (1)

BRUCELLOSIS • This disease is caused by *Brucella melitensis*. • It occurs more frequently in South Africa.

- A high percentage of the infected ewes will abort.
- Humans are susceptible to this organism and develop **Malta fever** if infection takes place.
- This disease of humans is characterized by an undulating fever, articular pains (joints), headache and sweating.

What are the signs of brucellosis in sheep and goats? • The ewe shows no sign of illness. • Weakness and poor condition may be seen.

- After the abortion the ewe will discharge a thick, dark red fluid from the vulva.
- The udder is often infected and mastitis can severely reduce milk production.
- Poor lambing percentage is recorded.

Control measures or treatment

- Treatment is not allowed in South Africa.
- The state veterinary services implement control measures to prevent further spread and clean the flock of infection. Prevention
- Vaccination is an option in countries where there is a high incidence of the disease, but ultimately the aim should be to eradicate it by slaughtering.
- All aborted fetuses and membranes must be removed from the kidding area immediately, as well as the soil contaminated by contact with the membranes. Aborting ewes must be isolated from the rest of the flock and culled as soon as possible.
- Report abortions to your nearest state veterinarian or animal health technician who will assist you with the control of the disease. (2)

RIFT VALLEY FEVER (RVF) • The disease occurs in South Africa and spread during the rainy cycle. • It is caused by a virus transmitted by mosquitoes during summer when there is heavy rainfall and persistent flooding. RVF seems to spread along river courses. Infected animals can then transmit the disease to others by means of aborted fetuses or it can be spread by needles during vaccination. **What are the signs of RVF in sheep and goats?** • The RVF virus causes abortions in sheep and goats, leading to large-scale deaths in young lambs—up to 95% can die within days.

- The incubation phase of the disease is very short.
- Lambs show sign of illness within 1 to 3 days of being infected. • Some die within 12 to 24 hours after being infected without showing any signs.
- Newborn lambs are prime targets because their wool or hair is very short and they are highly susceptible.
- A high percentage of ewes in the flock will abort, causing abortion storms.
- Adult sheep show sign of weakness and sometimes bloody diarrhoea.
- Bleeding from the nose is also seen.

Prevention •

There are two effective RVF vaccines produced by Onderstepoort Biological Products (OBP). One is a live vaccine for sheep and goats, which gives long-lasting protection after a single vaccination. • This vaccine cannot be used in pregnant animals as it may cause abortions. • The RVF live vaccine affects brain tissue. If a pregnant ewe is vaccinated before the foetus is 3 months old, the live vaccine will attack the undeveloped brain of the lamb and cause malformation. • Lambs and kids of vaccinated sheep and goats should

be vaccinated at 6 months or at weaning but not before, or natural immunity will be destroyed. • The other vaccine is an inactivated vaccine developed for pregnant sheep and goats. • The vaccine can safely be given to pregnant ewes but the immunity lasts for one year at most. (2)

WESSELSBRON DISEASE • This disease often occurs together with RVF. • Wesselsbron disease was first identified in the Wesselsbrondistrict in South Africa when abortions were occurring in sheep that had already been vaccinated against RVF. **What are the signs of Wesselsbron abortion?** • The only sign is a mild temperature. • The ewes abort because the foetus is dead. • They produce dead lambs without being sick themselves. • Up to 30% of lambs die, usually between 1 and 10 days of age. • Wesselsbron disease is therefore considered to be mainly an abortion disease. **Prevention** At this stage there are no preventive vaccines available. (2)

STRESS AND HABITUAL ABORTIONS Stress abortion • This happens to the metabolically sensitive pregnant goat. • All breeds can be affected, but Angoras are more susceptible. • The stress is usually directly and indirectly related to feed disturbance, which causes the blood sugar level to drop.

