Surgical Conditions of the Reproductive System of the Female Sheep

Reproductive ultrasonography

Ewes can be scanned for pregnancy and numbers of fetuses from 45 days onwards, and the age of the fetus can be judged fairly accurately using calipers. However, what is important is to use the information of pregnancy and numbers to the maximum advantage. Barren ewes should be removed from the lambing flock and ewes should be separated into three groups for feeding according to fetal numbers. Lambing assistance should be concentrated on those ewes with multiple fetuses. Hill ewes, which are often running with the tup, are normally scanned later, at approximately 90 days. This extended window picks up more late pregnancies. Twin-bearing hill ewes can be housed. Normally hill ewes that have twins one year, are so debilitated that the following year they have a single lamb or are barren. As the lambing will be stretched out in hill ewes, knowing the stage of pregnancy can be used to save feed. In lowland flocks which are totally housed for lambing, the ewes with triplets can be lambed next to those with singles to make fostering easier.

Accurate scanning and **recording** is the single most important management tool available to promote a successful enterprise.

Whenever high barren and/or low twinning rates are identified, the opportunity should be taken to investigate these problems, so that they can be avoided in the following year. High barren rates at scanning may be associated with:

- Ewes not showing behavioural oestrus at the time of tup introduction because the tup was put in too early or they were suffering from concurrent disease.
- Infertile rams.
- Early embryonic death from selenium or iodine deficiency, toxoplasmosis, border disease, severe under-nutrition or prolonged stressful husbandry.

Low twinning rates resulting from low ovulation rates may be due to:

- The tups going in too early.
- The tups going in too late.
- Ewes in poor condition at mating.
- The wrong breed of ewe for the type of farming.
- Mating ewe lambs.

Ram colour harnesses or keel marking will help to identify that the ram is working. If the colour is changed at 16 days it will also indicate that the ewes are returning to oestrus and therefore not in lamb that cycle. Ram harnesses must be a comfortable fit and checked regularly. Certain individuals may not work wearing a harness, and these rams will have to be keel marked. The crayons vary in hardness. The harder ones should be used in warmer weather and the softer ones during cold weather. Any soreness to the brisket must be treated promptly as if any sore is left it will be difficult to heal and become a welfare problem. Rams can easily be trained to a bucket of food so they can be gathered regularly to check harnesses without any stress.

Prolapse of the vagina cervix

Occurrence of this condition is very variable between flocks, and prevalence varies between 1 and 5%. There are significant differences between breeds. The worst breed combination to be affected is said to be Suffolk rams mating cross bred ewes (Fig. 13.7). However there are thought to be many other factors such as obesity, old age, bulky feeds, steep or hilly ground, and hormonal and mineral imbalances. These factors are thought to raise intra-abdominal pressure or increase the laxity of the vagina and its supporting structures.

Vaginal prolapse is a condition of the last 2 months of pregnancy, and most cases will occur in the last 3 weeks of pregnancy. Ewes that have experienced vaginal prolapse in a previous pregnancy appear to prolapse earlier in their subsequent pregnancies. Vaginal prolapse tends to develop over a few days. Peracute cases do occur when there is rupture of the vaginal wall. Prolapse of the vagina, cervix and uterus occurs post-partum and is sporadic, not a flock problem.

Initially the pink mucosa of the vagina may be noticed protruding slightly between the lips of the vulva in a ewe lying down,

only to disappear from view when she stands up. Later the vagina fails to return to its normal position when the ewe stands and the prolapse progresses until the vagina is completely everted and the cervix is visible. Initially the vaginal mucosa is pink, moist and smooth but, if not treated, the vagina becomes swollen, oedematous and congested. It is very susceptible to injury. After prolonged exposure, the dried vaginal mucosa becomes rough and haemorrhagic. The ewe is now constantly straining as the urethra is kinked and the bladder is full and may even lie inside the prolapse. Trauma at this stage may lead to vaginal rupture, prolapse of the bowel and death.

All vaginal prolapses should be treated. This may be done by the shepherd by the use of a vaginal spoon. This is a plastic or stainless steel T-shaped device. The tongue is inserted into the vagina and the sides of the T are tied to a long piece of baler twine tied around the ewe just in front of the udder. If the case is treated early enough, this device is often successful, particularly if it is linked to a leather or webbing harness. In long-standing cases, however, veterinary intervention is required. With the ewe standing, a sacrococcygeal epidural anaesthetic should be administered (see Chapter 8). After replacing the vagina and cervix the lips of the vulva should be sutured with a single Buhner suture of uterine tape. A long Seton needle is inserted into the skin at the ventral end of the vulva. It is pushed carefully in a dorsal direction subcutaneously and slightly laterally to emerge ventral to the anus. The tape is threaded and withdrawn. This is repeated for the other side of the vulva. The two ends are tied with a bow so only two fingers can be inserted into the vulva (Fig. 13.8). The shepherd is advised to untie the bow but not remove the suture if the ewe is thought to be lambing. If this is the case the ewe may be lambed down by removing all the lambs and the suture removed, as the condition should not reoccur in the non-pregnant ewe. However if the cervix is closed and the ewe is not lambing then the suture should be re-tied, as the condition will reoccur until parturition has occurred.

Ewes should be marked and culled, as the condition will occur at any subsequent pregnancy. If flocks experience a high prevalence of vaginal prolapse, their nutrition

Fig. 13.7. Prolapsed cervix in a ewe.

Fig. 13.8. Buhner suture.

should be investigated before tupping for the next lambing season and their body condition should be scored. Those overweight ewes should be dieted to bring them to a body condition score of 2.5 **before** tupping.

Prolapse of the uterus

Unlike a prolapsed vagina this is an emergency and occurs after lambing (Fig. 13.9). The normal cause is the birth of oversized lambs. Although the condition can reoccur at subsequent lambings, this is not the norm and therefore there is no reason to cull affected ewes. The clinicians must instruct inexperienced shepherds on the diagnosis of this condition, as retention of fetal membranes may in some instances resemble uterine prolapse. Normally the whole organ is prolapsed but occasionally the condition only affects one horn.

The ewe should be secured and given sacrococcygeal epidural anaesthesia. The fetal membranes should only be removed if they come away easily, otherwise they should be left *in situ*. The ewe should be given antibiotic cover and NSAID. If the ewe is still standing the uterus should be elevated and replaced. Old shepherds cover the organ with sugar to reduce the swelling, but the author has not found this to be advantageous. A second pair of hands is certainly useful: if the ewe is down an assistant can raise the pelvis of the ewe, and this helps replacement enormously. After replacement the lips of the vulva should be sutured with a single Buhner suture and the ewe should receive 20 IU of oxytocin intramuscularly. The suture should be left *in situ* for 48 h. Antibiotic cover and NSAID should be given for a minimum of 3 days.

Surgical Conditions of the Reproductive System of the Female Goat

Reproductive ultrasonography

Pregnancy diagnosis

Requests for pregnancy diagnosis in goats are, in the author's experience, rare. Transabdominal scanning is straightforward provided early pregnancy diagnosis (i.e. before 45

Fig. 13.9. Uterine prolapse in a ewe.

days) is not required. Prostaglandin injections should never be given before 45 days to a doe that is thought to be empty. A later check should always be performed, and the easiest method is with the doe standing. Some authorities recommend clipping the area on the right flank above the udder and using lubricant gel or vegetable oil. This is very messy and isopropyl alcohol is cleaner and will not damage the probe. There is no need for clipping if isopropyl alcohol is used.

Prolapse of the vagina cervix

Goats will suffer from this condition, but it is rare and does not occur as a herd problem as in sheep. However it will occur again in a subsequent kidding, and so affected goats should not be bred again. Surgical treatment is the same as for sheep, although vaginal spoons and leather harnesses are not used routinely in goats and suturing is the treatment of choice. Antibiotic cover and NSAID should be given and the tetanus status should be checked. It must be remembered that the condition normally occurs before parturition.

Prolapse of the uterus

There is some doubt about the cause of this condition. It can, as with sheep, be caused by relative fetal oversize. It is seen in pygmy goats with a single large kid. However it will also be seen in milking goats suffering from hypocalcaemia. In these cases it is important to treat the hypocalcaemia first as there is a danger that the stress of uterine replacement may cause death. Sacrococcygeal epidural anaesthetic should be administered and then the hindquarters of the goat should be raised. If that is difficult and is causing stress then the goat can be allowed to rest in sternal recumbency with its hind legs in extension directly behind it. This position greatly eases the replacement of the uterus. Antibiotics and NSAID should be given before replacement and 20 IU of oxytocin immediately after replacement. The tetanus status of the goat should be checked. In milking goats it is particularly important to check the udder for evidence of mastitis, which should be treated appropriately.

Normal Parturition in the Ewe

Birth injury and perinatal loss in lambs

The causes are interrelated but they can be attributed to the ewe, the lamb and the shepherd. The breed of the ewe is a factor particularly when linked to the breed of the ram and hence the breed of the lamb. Relative fetal oversize is important. The shape of the ewe's pelvis is also radically altered by the breed. The age of the ewe – or should we say ewe lamb or shearling – is important. Lambs must not be too immature. However with the correct sire there is no reason not to lamb down ewe lambs, but they should not be mated until they are 65% of their adult weight.

The ewe is considerably influenced by the level of nutrition. If they are on too good a plane of nutrition they will be too fat and the lambs at term will be too large. Fat deposits within the pelvis and fat around the posterior vagina will constrict the birth canal and cause dystocia. On the other hand, the undernourished ewe may be too weak to give birth and the fetus suffers birth injury caused by anoxia during prolonged parturition. In addition, clinical disorders (see Chapter 9) such as pregnancy toxaemia and, less commonly, hypocalcaemia, can lead to uterine inertia and consequent anoxia of the fetus, which frequently results in stillbirth (Wilsmore, 1989).

As well as fetal oversize, malpresentation of the lamb, if it is not corrected carefully and professionally, results in birth injury. Congenital abnormalities such as arthrogryposis may make it impossible for the lamb to be presented in a normal posture for delivery and therefore these cases also suffer injury.

The amount of input from the shepherd supervising lambing and their level of expertize are both major factors that influence the incidence of birthing injury.

Oedematous lesions, mainly of the head, are commonly seen following dystocia in cases of malpresentation (e.g. only the head is presented and not the legs). They are also seen in cases of relative fetal oversize. Oedema