Control of orthopaedic lameness in farm and pet small ruminants

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Graham Duncanson shares his experience of managing orthopaedic conditions in the legs of sheep, goats and camelids, and explains his treatment methods

THE division of the species – sheep, goats and camelids – for this topic is not very helpful.

Pet sheep and very valuable pedigree sheep, I think, can be covered in a similar way to the individual goat or camelid. However, a sheep in a large flock is unlikely to be treated as an individual and the practitioner’s approach will vary enormously. This is definitely the case in hill sheep, which may not be observed closely for the majority of the year.

Therefore, I hope readers will forgive me for concentrating on the individual animal and discussing the orthopaedic problems likely to be faced by the practitioner. As an example, I use the presence of sores or indurated skin on the knees or the brisket as a good indication of chronic lameness in welfare cases. Hopefully, there will be no such lesions in pet animals.

Joint infections

Wool sheep and alpacas need to be felt rather than observed for muscle wasting, which can occur as soon as a week in lame animals. Feeling the prescapular lymph node (I find the popliteal lymph node difficult to palpate) will give a good indication of a septic condition of a joint in the forelimb. In my experience, they are rarely swollen in septic feet conditions. Equally, I have found that Streptococcus dysgalactiae and Erysipelothrix rhusiopathiae joint infections in sheep rarely cause
joint effusions.

In goats, *Staphylococcus aureus* seems to be the most common pathogen for individual joint infections. A multiple arthritic condition in goats is caused by *Mycoplasma mycoides*, but this must be differentiated from caprine arthritis-encephalitis, which causes arthritis in the adult goat. Older sheep and goats will suffer from osteoarthritis. However, I have not seen this condition in camelids. Equally, I have never seen carpal hygromas in camelids, but they are common in sheep and goats with chronic foot lesions.

I have seen two goats with stifle problems. One appeared to have a ruptured anterior cruciate ligament. This was an elderly animal and was euthanised. The other had jumped over a door and had pain on the medial aspect, but responded to NSAIDs. Although I have seen many sheep jumping and hitting the tops of sheep hurdles, I have never seen any stifle injuries in this species. Perhaps the animal’s wool protects this joint.

I have seen one goat with pain on the lateral aspect of the stifle, which had a rupture of the peroneus tertius. The stifle remained flexed, but the hock was abnormally extended, with the foot dragging on the ground. The Achilles tendon was slack and the condition was resolved in eight weeks.

**Tendon injuries**

All three species suffer from tendon problems, with contracted tendons in the forelegs of newborns the most common. I suspect there must be an underlying genetic predisposition, as some sheep flocks appear to have an outbreak. The condition appears prevalent in the Anglo-Nubian and Angora goat. I have never seen an alpaca with this condition, but have seen two llamas affected.

The reverse condition of weak tendons in the hindlegs occurs in all three species, but appears to be more prevalent in goats. I have seen one goat with ruptured tendons in its left foreleg, after it had been caught for many hours in a tether chain. Mercifully, although tethering is quite a common practice in our area, I have not seen other injuries.

**Bone conditions**

Bone problems seem to be rare in these species. However, all three species can be affected with epiphysitis of the carpus, which causes bent legs in young animals. This is compounded by rickets, and there is good evidence that camelids are especially affected. Compared to their traditional home, high up in the Andes with plenty of sunlight, the need for vitamin D in the grey UK climate may be more acute. Thus, most camelid breeders routinely supplement their crias (young camelids).

In this area there is an apparent copper deficiency, owing to the high molybdenum content of the
soil. This mainly manifests as swayback in lambs, but rarely in young goats. However, copper deficiency has been reported to cause brittle bones in goats and camelids, with resulting fractures, but this has not been my experience.

**Fractures**

Vertebral fractures are very rare. I once carried out a postmortem on a goat that had been caught in its tether and fallen down into a ditch. As a result, the animal had suffered a fracture of the atlas. Vertebral fractures have been reported in camelids, but are beyond my experience.

Long-bone fractures are common in lambs that have caught a limb in a sheep hurdle. Each case, however, must be considered separately. These injuries are unlikely in pet sheep, where proper orthopaedic surgery would be financially possible.

Therefore, the first consideration must be welfare, and this should be immediate in fractures of the humerus and femur. When treating fractures of the radius and tibia, I find it very difficult to immobilise the elbow and the stifle. I find my cast is either too tight and causes pressure sores, or too loose and is ineffective. I am sure readers would be interested in any tips other practitioners can supply.

I have, however, been very successful with fractures of the metacarpus and metatarsus. I am sure the youth of the patient is helpful in fractures involving the fetlock (obviously, animals near slaughter weight are slaughtered on site for home consumption).

I immobilise the whole leg from above the knee or the hock with a splinted Robert-Jones bandage after giving a low dose of xylazine. I then cover this with black gutter tape, paying particular attention to reinforcing the toe, so that it is not worn through. The splint is checked at weekly intervals, and may need to be replaced if there is significant growth of the lamb.

Fractures in young camelids can cause confusion as these animals are extremely stoical and may not show the pain normally associated with a fracture. Therefore, I suggest practitioners should take all lame camelids seriously. Finance is not normally a problem and so I think radiography is indicated. Xylazine is usually sufficient to allow the practitioner to take radiographs and splint the cannon bones. However, the help of an orthopaedic surgeon will be required for internal fixation of other long-bone fractures.

These patients will need to be anaesthetised with a mixture of 3.3ml ketamine, 1.7ml two per cent xylazine and 0.3ml butorphanol tartrate given intramuscularly in the quadriceps for a 60kg alpaca. Intubation is then difficult, but can be achieved by keeping the animal in sternal recumbency, with the head held up, keeping the neck straight, and by using a rigid canine laryngoscope.

**Summary**
In conclusion, orthopaedics in small pet ruminants can be a challenge to the practitioner. The older, more traditional, farm animal practitioner (like myself) needs to change his or her mindset. The treatment of a fat female lamb with a fracture may be an anathema to such a vet but, provided strict welfare standards are adhered to, there is no reason why such fractures should not be repaired.

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Goats are much-loved animals, but the older animal may suffer from osteoarthritis.
Above: a goat with lateral deviation of the right foreleg following long-term medial toe removal on its left forelimb.
Below: an old goat with weak tendons on the hindlegs.
An old goat with normal upright hindlegs.
Radiograph showing a fractured tibia in an alpaca.
Inset: the result of carpal deviation in an alpaca.
The “kush” (recumbent) position is normal camelid behaviour.