Reduction of Dislocated Hips

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Introduction

Most veterinarinas in dairy practice will have been presented with a cow with a coxofemoral luxation (commonly known as dislocated hip) usually either over the calving period, related to calving paralysis, milk fever etc., or more commonly, during the mating period when cows riding each other on the cow yard slip, spread their legs abnormally and dislocate their hip joints.

During my time in dairy practice, I have developed methods of diagnosis, prognosis and reduction of the dislocated hip. I have had as many reduction failures as I have had successes, but all cases help my understanding and knowledge of hip dislocation and the successes make me keep trying.

Diagnosis

In most cases diagnosis is very obvious, especially in the walking cow which has the hind leg either in a stiff extended attitude with outward rotation of the stifle, or appears lame with the greater troachanter higher and much more prominent than the other side. Although Oehme and Prier[1] suggest that rectal palpation should be a routine part of the evaluation, I get very little value from this.

The downer cow, i.e., calving paralysis, milk fever etc., is much more difficult to diagnose as one's attention is usually on the cause of the cow being down rather than on the extra factor of a dislocated hip. The easiest way to diagnose these is to lay the cow out laterally with the dislocated leg uppermost and have someone flex and extend the leg while palpating the hip region. If the hip is dislocated, crepitus is usually felt even if craniocaudal or ventrodorsal movement cannot be induced. The outward rotation of the stifle is also usually noticeable. Both hind legs may need to be checked for dislocation. Do not confuse the crepitus with that felt in the stifle when the cow has ruptured cruciate ligaments, as this can be felt anywhere along the femur.

I have difficulty in determining the difference between a dislocation and a fracture of the femoral head, although I believe that femoral head fractures are rare. This can be explained by the fact that the acetabulum in cattle is shallow[1] thus making dislocation more likely when forces from an abnormal direction come on to the leg.

Prognosis Before Attempting Reduction

After many attempts at reducing dislocated hips where the prognosis has been impossible, I now make an experienced assessment before I even attempt to reduce the hip. Time after the dislocation has happened is very important and usually any more than two days afterwards, muscle contraction has occurred and the hip is almost impossible to move back into place. If the owner is adamant, I will attempt these but have had very little success except where the dislocation is craniodorsal. These may slip back in even if the hip was dislocated more than two days previously.

The downer cow with a dislocated hip I give as having a nil prognosis especially if they have never been on their feet since calving paralysis, milk fever etc. With these, the hip may go back in but as soon as they attempt to stand, the hip pops out again. Therefore, the cow which is walking around with a recently dislocated hip is the animal with the best prognosis.

Equipment

The equipment I use is fairly simple:

Xylazine for anesthesia intravenously at 0.1 mg/kg

Pulleys usually used for traction during calving dystocia. I know a lot of you don't have pulleys, but most farmers have some for hoisting up sheep for dressing after slaughter, or for calving. In the absence of any pulleys, Neil Stevenson's[2] ingenious two plank method should be just as effective for obtaining the traction desired.

An anchor point for the pulleys, e.g., post, vehicle etc.

Short rope to tie around the cow's leg. I find the soft 'Shoof Rope' excellent for this purpose.

Fence batten or bar of similar length to be used as

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a lever at the hock for rotation of the leg. I use the handle of my twitch.

A long rope to pass under the top leg and tied to either an anchor or a person in a position dorsal to the cow. I rarely use this rope as I feel that a small amount of rotation of the cow pelvis while traction is on allows the femoral head an easier passage in its ventral movement over the top of the acetabulum.

Placement of Equipment

Obviously general anesthesia is required for muscle relaxation and for analgesic reasons. I use intravenous Xylazine at 0.1 mg/kg.

Selection of the site where the cow is to be dropped is also important as it needs to be a clean surface on with the animal can have good traction when it stands up. It also needs to be near an anchor point, such as a fence or a tractor or even your own vehicle. I quite often drop them next to the fence on the sawdust pads which are abundant in our area.

After effecting anesthesia, the cow is stretched out laterally with the dislocated leg uppermost and pointing ventrally at right angles to the body, directly at the anchor point. The anchor point should be one to two meters from the cow's foot depending on the length of the pulley ropes.

A rope is tied around the hock in a criss cross pattern so that it passes both above and below the hock with about four to five turns around the leg. A crossover of the rope over the lateral side of the hock is desirable so that the lever can be threaded through the rope to lie craniocaudal on the lateral side of the hock. Retensioning of the rope may be necessary after traction has been applied.

One end of the pulley is attached to a distal part of the rope while the other end is attached to the anchor.

It is desirable to have two people to assist with the reduction. Someone needs to hold the cow's head flat on the ground, as the cow may try to sit up as the pressure comes on. The second person is needed to apply traction to the pulleys when needed.

Method of Reduction

As there are mainly three positions the femoral head ends up in after luxation, the method used to reduce the hip depends on the position.

Position 1: Caudodorsal of the acetabulum.

These are the simplest dislocations to reduce as straight ventral traction will usually pop the femoral head back into the acetabulum with a loud bang.

Position 2: Craniodorsal of the acetabulum.

These look very similar to the caudodorasl dislocations but the head of the femur lies cranial of a ridge of bone dorsal to the acetabulum. They are much more difficult to reduce. You will soon know these when traction is applied without inward rotation, as the stifle will rotate outwards and the femoral head will slide cranioventral and into the region of the obturator foramen.

To reduce these, heavy inward rotation of the stifle and outward rotation of the hock with the lever while traction is applied ventrally will sometimes shift the femoral head caudally across the body ridge and then ventrally into the acetabulum.

These luxations may take some time and patience as every time the rotation pressure is slightly relaxed, the femoral head moves cranioventrally, and needs moving back dorsally as in Position 3.

Position 3: Cranioventral of the acetabulum.

These are the most difficult dislocations to reduce as sometimes the femoral head may be jammed in the obturator foramen.

To reduce these, the femoral head first needs to be moved dorsally. This is achieved by flexing both stifle and hock joints, lifting the leg laterally and rotating the stifle outwards, the hock inwards, and then push upwards. The femoral head should then end up in position 3 from which position the dislocation can be reduced.

The femoral head may not shift at the first attempt but continual pressure may stretch the muscles enough to shift it.

If the femoral head is jammed in the obturator foramen, sometimes it is impossible to remove.

Not all dislocation will be reduced at the first attempt, so keep trying different approaches. The longer you try, the more you will learn.

After the hip has been reduced, check to see if it is in the right place by flexing and extending the leg while feeling for crepitus and movement at the same time. The outward rotation of the stifle should not be apparent anymore. Compare the position of the greater trochanter to that on the other side; they should line up. If satisfied that the hip is in the right place, I then pommel the gluteal muscles with the batten in a similar manner to that described for the dog but with more force. The theory behind this is that the bruising of the muscle puts it into spasm thus holding the joint tighter and less likely to reluxate.

Once all manipulations have been finished, I like to use the electric goad to encourage the cow to get to its feet so that I can assist it, especially on concrete, thus avoiding it reluxating its hip when it first stands on its own and also enabling me to make a final check to see

that the hip is properly reduced. Also if the cow can be walked around, the muscle contraction involved will hopefully tighten up the joint.

Results

I know the method sounds simple but there is always the hip which won't go back in no matter how hard you try. The biggest problem is making the decision when to give up. I think this is up to the individual, but I have found that the ones which I do reduce usually do so after a short period of trying, while those I keep persevering with very rarely are reduced. Cow size and muscle mass can make a difference with hip reduction easier in Jerseys than in large Friesians.

If you find that the hip is not properly reduced but is close to, the cow may be able to survive with a mild limp for the rest of its life. Of course, these cows could have broken femoral heads making it impossible to properly align the hip joint. The other possibility is torn soft tissue in the acetabulum stopping the femoral head from fully engaging.

Prognosis after a successful reduction is usually good as long as the cow is healthy and walking freely. The only failures I know of in walking cows are two which went down with milk fever a few days after reduction and one which slipped on the concrete while bulling a year after I had reduced its hip.

Of course, all the hips I have successfully reduced in downer cows have reluxated, thus my reason for not attempting these nowadays.

Discussion

These hip reduction methods can be used on all types of bovines, although because of its muscle mass a bull would be much more difficult.

I have reduced dislocated hips in calves with manual traction by exactly the same method as the dog, but in yearlings, mechanical traction is usually needed.

The tieback rope to stop these lighter animals from sliding across the ground is definitely needed.

I hope this paper does not confuse you. The idea is to encourage you to have a go at reducing dislocated hips, as the more times you attempt them the more successes you have, especially if you pick your cases carefully.

References

1. Oehme, F.W. & Prier, J.E. (1974): *Textbook of Large Animal Surgery:* 324:326. 2. Stevenson, N. (1986) Large Animal ("Manipulative Surgery"): *Dairy Cattle Soc. NZ. Vet. Assn. Newsletter,* Vol. 3, #1, p. 9.

Abstract

Recent bruising in cattle at abattoirs

P.W. McNally, P.D. Warriss
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In two surveys of a total of over 16,000 cattle carcases, animals from live auctions had more bruising and more meat rejected for bruising than animals from dealers and farms. The proportion of carcases with stick-markings was higher in market cattle (2.5 per cent) than in cattle from farms (0.9 per cent). The amount of bruising was much higher in animals which were stick-marked (35 per cent) than in the whole population surveyed (6.5 per cent). Young bulls had the lowest parentage of bruising and the least amount of meat rejected of all the categories of animals surveyed. There was less 'important' bruising in animals traveling less than 50 miles from markets, but over 50 miles the amount of 'important' bruising did not increase. However, the incidence of all bruising increased with the distance travelled and with the time the animal spent in the lairage. More than half the carcases surveyed (59 per cent) had some degree of bruising caused by preslaughter handling. The areas most frequently bruised were the butt and hip, loin, shoulder/foreleg and neck, hind leg and flank/brisket. The number of carcases with an ultimate pH (pHu) of over 5.8 and the average pHu of the muscle increased with the amount of carcase bruising.