APPROACHING CALVING PROBLEMS

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discusses the possible problems that can be encountered during calving, such as premature birthing, uterine rupture and fetal maldisposition

THE time around calving is the most critical period in the life of adult cattle.

The incidence of disorders, disease and, ultimately, death is higher during this period than at any other time, yet this time is also the most productive, with a newborn calf and the onset of lactation contributing to the income and profitability of the farm.

In cattle, it is estimated that between three and 10 per cent of calvings are difficult (dystocia) and require intervention or assistance. On some farms, or in some circumstances, this incidence can be much higher.

This article will provide an overview of calving problems, including what can occur, why it can occur and some of the approaches to dealing with a difficult calving.

Factors

Dystocia can occur as a result of maternal, foetal or external factors. During observation and examination of a calving cow, the reason for the difficulty with progression of calving may become apparent, but in some cases, the cause may not be identified until the calf has been removed or the cow has responded to treatment.

We will firstly consider maternal factors that result in the failure of expulsive forces for labour to be completed.

Primary uterine inertia is failure of the uterus to contract and is most commonly due to hypocalcaemia, but can also occur with a hydrops calf, general ill-health in the dam or environmental disturbance. It results in absent or disrupted second-stage labour, with everything else usually normal (for example, foetal presentation and cervical dilatation). Treatment is aimed at correcting the underlying cause (if possible), manually providing traction to remove the calf (if required) and then providing post-calving oxytocin (30IU to 50IU intramuscularly) to aid uterine involution and placental expulsion.

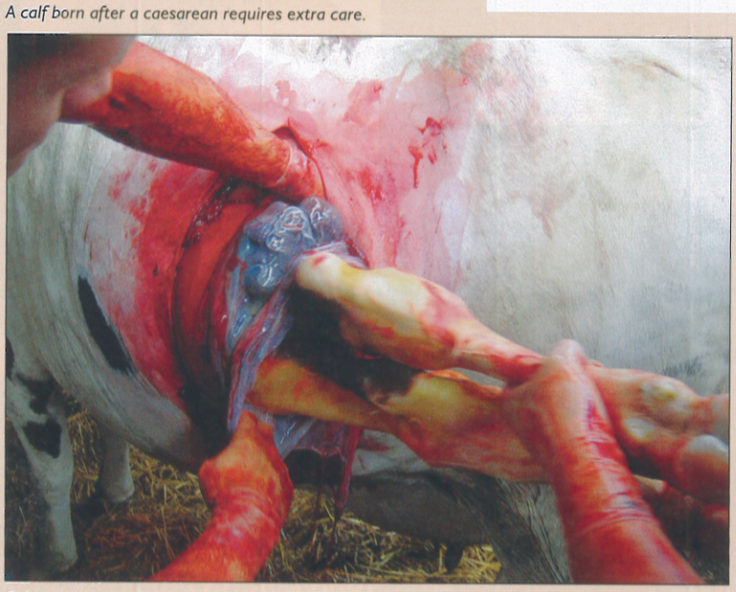
Secondary uterine inertia is less common and occurs due to exhaustion of the myometrium with prolonged gestation, or due to another factor contributing to the dystocia. Treatment is as for primary inertia, again providing oxytocin (as mentioned previously) after delivery.

Premature birthing may occur for a variety of reasons, and can prevent the normal uterine contractions, with manual assistance being required, as for inertia. Damaged abdominal musculature of pain and discomfort against the diaphragm can physically hinder contractions from occurring – it is important cows showing signs of discomfort are given adequate pain relief and monitored even more closely for the onset of calving.

Uterine rupture rarely occurs, but when it does it will result in failure of contractions and can be difficult to identify until the calf has been removed. It is good practice after all calvings to palpate the uterus for any tears or bleeds that may require further intervention.

A common set of maternal factors contributing to difficulty with the calving process are those that cause obstruction of the birth control. Bony obstructions may occur due to skeletal immaturity as a result of premature breeding or poor growth rates in maiden animals. They may also be secondary to pelvic fractures or occasionally due to sacral displacement. The signs are consistent with lack of progress in second-stage labour.

A calf born after a caesarean requires extra care.



Calving via caesarean section is sometimes the only option.

Meconium-stained calves are common following a difficult calving.

A normal calving.

In addition, treatment often doesn't respond with manual manipulation and caesarean section, or foetotomy becomes necessary. Soft tissue obstruction may occur due to failure of the vulva or vagina to dilate, usually due to fibrosis (from trauma at a previous calving, external injury or pre-partum vaginal prolapsed).

On examination, the cervix is usually fully dilated, with the foetus in normal presentation. Treatment requires gentle manual stretching of the soft tissue over 10 minutes or so, then delivery of foetus past the obstruction. If this does not provide adequate room in the birth canal, then episiotomy may be attempted before embarking on a caesarean section.

Failure of cervical dilation is a reasonably common cause of bovine dystocia, although it is less commonly identified in cattle than in sheep (ringwomb). It is caused by failure of hormonal control or physical dilation (by foetal sacs and the foetus itself) in most cases. It can also be seen in delayed or missed cases of dystocia, when the cervix contracts down again. Examination must establish that parturition is imminent and there is no torsion present before attempting manual dilation to gently attempt dilation of the cervix.

Prostaglandin treatment may help in some cases, but the rest will require caesarean section.

Foetal factors that contribute to calving problems include foeto-maternal disproportion, maldisposition and foetal death. Foeto-maternal disproportion may be due to either absolute oversize of the foetus or the foetus being too large to pass through the dam's pelvis. Foetal size is influenced by breed, length of gestation, gender, multiple birth, double muscling and so on. Pelvic size is influenced by age, weight, breed and skeletal frame. Disproportion can also be caused by foetal monsters (such as schistosomus reflexus, conjoined twins and bulldog calves). The clinical signs are those consistent with stage two of labour not progressing, with foetal parts sometimes being visible.

On vaginal examination, there may be an obvious lack of space, foetal abnormalities or no progress, or movement of the calf during traction – despite apparently correct presentation. Treatment will involve caesarean section or foetotomy if the calf is dead.

Foetal maldisposition is when the foetus is presented in an abnormal presentation, position and/or posture. It may occur when multiple births and foetuses are entangled.

"Excessive intervention can lead to dystocia by disturbing animals and preventing straining, but insufficient intervention is more likely to reduce fetal viability and dam health by failing to spot and correct problems early."

A previous article addressed the correction of individual malpresentations, and clearly any suitable method can be used, but all maldispositions in full-term calvings must be corrected prior to vaginal delivery. Foetal death may be the result of another abnormality, such as foetal oversize, or cause various problems of its own, such as enlargement of the calf due to emphysema, lack of lubrication, maldisposition, uterine inertia or lack of cervical dilation. Dead calves should be removed by either foetotomy or caesarean section, with the decision based on assessment of the risk to the dam's health based on clinical examination.

Environmental factors that contribute to dystocia include diet and nutritional factors, with under-conditioned animals more likely to have reduced calf viability and exhaustion of the dam, and over-conditioned animals having soft tissue (fatty) obstruction

A healthy cow and calf indicates a successful outcome.

and reduced efficiency of straining. Human supervision and intervention around the time of calving must be correctly judged and is, therefore, better performed by experienced staff.

Excessive intervention can lead to dystocia by disturbing animals and preventing straining, but insufficient intervention is more likely to reduce foetal viability and dam health by failing to spot and correct problems early. Supervision is greatly aided by:

- knowing expected calving dates (based on service dates)
- a tight calving period;
- easy access to animals; and
- good handling facilities for intervention, including easy access to restraining, equipment and good lighting.

Induction of birth may lower the risk of foeto-maternal disproportion, but can increase the chances of foetal maldisposition, failure of cervical dilation, retained foetal membranes and insufficient or poor-quality colostrum.

Finally, there are some intrinsic factors that can lead to dystocia or an increased incidence of dystocia on farms.

Age plays a role in dystocia, with a greater incidence in primiparous compared with multiparous dams. Bodyweight and size affects pelvic diameter – the external distance between tuber coxae should be a minimum of 40cm before a heifer is bred. In maiden heifers, a generalisation is to aim for 55 to 60 per cent of mature bodyweight at service, and 85 to 90 per cent at parturition. There are major breed differences in the incidence of calving difficulties due to the difference in gestation length, body shape, and calf size. Similarly, there are in-breed sire differences between individual bulls with regard to calf size and gestation length. Classification systems can provide a guide to calving ease, but should be used carefully and in conjunction with heifer and cow information, and prior history where possible.

Gestation length affects calving, with longer gestation periods producing heavier calves due to cumulative daily growth rates in late pregnancy and increased long bone length. Holstein-Friesians' gestation length is typically 283 days whereas it can be 290 days in some continental breeds and there may be in-breed differences between individual animals. Heavier calves often have large body dimensions, with male calves generally heavier and with longer gestation lengths than female calves.

Similarly, twin or triplet calves carry a higher risk because of maldisposition and the dam's poorer body condition, but cannot be fully controlled.

Summary

In conclusion, there are many problems that can occur at and around calving. The incidence of calving problems on an individual farm should be calculated and monitored so that a high incidence of dystocia can be addressed.

Evaluation of the main causes of dystocia on farm, whether they be maternal, foetal, environmental or intrinsic, can help determine the best methods for reducing the problem. Dystocia is costly, even when dam and calf survive, due to farm labour and veterinary intervention – not to mention the impact on staff morale. Vets are well placed to deal with calving problems, not only as first opinion work when a problem occurs, but also ensuring farmers are well educated and supported. ■

JUDITH ROBERTS graduated from the Royal (Dick) School of Veterinary Studies, Edinburgh in 2003. She spent three years in practice before moving to the University of Cambridge as the farm animal resident and then to Lambert, Leonard and May. Her interests lie primarily in cattle medicine and surgery, and she is working towards a PhD in conjunction with the University of Lancaster's engineering department, using advances in technology that can be applied in the veterinary field.