THE SCIENCE WORLD
A Monthly e Magazine
ISSN:2583-2212
May, 2023; 3(05), 838-842

Popular Article

An Overview of Dystocia in Various Animal Species

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https://doi.org/10.5281/zenodo.7976789

Abstract

Dystocia of maternal source may be caused by uterine indolence, small pelvic size, failure of cervical dilation, and uterine torsion. Dystocia of fetal origin is generally caused by fetomaternal disproportion, fetal abnormalities, and hyperplasia. calf birth weight is the key fetal factor in determining the risk of dystocia. FetomCalf birth weight is the single most important fetal factor affecting the threat of dystocia in heifers, similar to that the larger the calf, the higher the chance of delicate calving. The effect of the breed of sire upon the calf's birth weight has long been recognized. In the following article etiology and treatment are discussed

Key-words: Dystocia, hyperplasia, Abnormal offspring syndrome, breeding values

Introduction

Dystocia comes from the Greek dys (difficult) and tokos (birth). Dystocia of maternal source may be caused by uterine indolence, small pelvic size, failure of cervical dilation, and uterine torsion. Failure of cervical dilation and uterine torsion are the most common causes of dystocia of motherly origin. Dystocia of fetal origin is generally caused by fetomaternal disproportion (large fetus), fetal abnormalities, or abnormal donation, position, or posture. Other anomalies causing dystocia include fetal anasarca and emphysematous fetus performing from death and maceration.

Fetomaternal disproportion in cattle

Calf birth weight is the key fetal factor in determining the probability of dystocia, whereas the key maternal intermediate causes are parity and size. Fetomaternal disproportion occurs due to a mismatch between the calf's birth weight and conformation and the dam's size and conformation.

Calf birth weight

Calf birth weight is the single most important fetal factor affecting the threat of dystocia in heifers, similar to that the larger the calf, the higher the chance of delicate calving. The growth of the fetus follows an exponential growth curve, with the greatest absolute increase in body weight occurring in the last trimester (although the highest relative growth occurs in the first trimester. Growth occurs through hyperplasia (mainly in early pregnancy) and hypertrophy (increasingly as pregnancy advances).

Breed of sire

The effect of the breed of sire upon the birth weight of the calf has long been recognized. The effect of dairy sire upon the birth weight of dairy calves depends on the breed and parity of the dam, such that calves sired by Jersey bulls have low birth weights and a low proportion of assisted calving's, which is remarkably unaffected by equality, whereas calves sired by Holstein bulls have higher birth weights and a much higher proportion of assisted calving's, especially in first parity dams.

Sex of calf

Many studies have shown, irrespective of breed, that the birth weights of male calves are greater than female calves. This increase in weight results in an increase in the risk of dystocia in male calves.

Length of gestation

The genetic correlations between gestation length, risk of stillbirth, calving ease, and calf birth weight are consistently reported as being high, providing an opportunity for genetic selection to improve calving difficulty/ stillbirth rate.

Effects of the dam

The birth weight of pins generally increased with both the age and the parity of the dam. Feed restriction of heifers in mid to late gestation commonly reduces calf birth weight, although without a consistent effect on dystocia. This appears to be because feed restriction not only reduces the

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Published **23.05.2023**

growth of the fetus but also reduces the growth and skeletal maturity of the growing primiparous animals

Abnormal offspring syndrome (AOS)

One of the disadvantages of ART is that a proportion of the embryos derived from these methods have various developmental anomalies, collectively known as abnormal offspring syndrome'(AOS). The manifestation of AOS as increased fetal birth weight is, however, only one part of the syndrome gestational failure in all stages of pregnancy and abortion; musculoskeletal deformities, disproportionate fetal growth; abnormal organ growth, and physical/ metabolic abnormalities that persist into postnatal life; abnormalities of placentation, including abnormal development of the allantois, placental vasculature, and, maybe, hydrallantois – these are all part of the AOS.

Calf conformation

The ability of a calf to be expelled unaided through the birth canal at parturition is dependent on its shape or conformation. This is seen in the most extreme situation of some fetal monsters such as fetal duplication, schistosomes, ascitic and anasarcous calves, and in the condition of muscular hypertrophy. Well-muscled calves born from a beef sire and dairy cow or heifer resulted in more difficult calving's and increased calf mortality.

Maternal factors

A) Parity

The degree of difficulty continues to decline as the parity of the animal increases, but the difference in the rate of dystocia between the first and second parity is usually much bigger than between the second and subsequent parities. Thus, heifers that are smaller or younger at first parturition are at greater risk of fetomaternal disproportion than are those that are larger or older.

B) Faulty disposition of the fetus

Presentation and position

About 99 of foals and 95 of calves are delivered in anterior presentation. When sheep are pregnant with a single lamb, they show a similar percentage of anterior presentations to cattle, but with twins, there's a considerable proportion of lambs born in posterior presentation. In monotocous species, posterior presentation is associated with an increase in the risk of dystocia. In polytocous species, the uncomplicated posterior presentation has only a marginal effect upon birth difficulty,

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whereas flexion of the hindlimbs causes an increase in the risk of dystocia.

Posture

In cattle, after the righting reflex (i.e., once the fetus has adopted an extended, dorsopubic position) a low level of fetal activity is required to maintain an adequate posture. If the normal fetal muscular activity does not occur during this period, dystocia due to faulty posture can ensue. Interestingly, during hypoxia, fetal movements are either markedly diminished or there are erratic limb and head movements, which could contribute to the development of abnormalities of posture. A congenital deformity known as wryneck, in which the head and neck are fixed in flexion because of ankylosis of the cervical vertebrae, arises during the peculiar bicornuate gestation of the mare. In polytocous species the relatively larger pelvis of the dam and smaller limbs of the fetus means that the disposition of the fetal limbs is less important than in monotocous species.

Prevention

Fetomaternal disproportion in cattle

Ensure body weight at the time of service is more than 260 kg. Take care when selecting the service sire. Most dairy sires now have published estimated breeding values (EBVs) for traits such as gestation length and calving ease If breeding by artificial insemination bulls; select a well-proven bull of high genetic merit. If breeding by natural service bulls; Avoid bulls of large breeds. Select a bull with a record of easy calvings. When looking at BVs for birth weight, avoid both very low and very high birth weights.

Management before calving

Adjust feed levels to avoid calving in an overfat condition. Restrict energy intake in the last 3 weeks of pregnancy. Check iodine and selenium levels if calf mortality has been high in previous years. Ensure supplementary magnesium is provided during the transition period. Ensure that an adequate exercise area is available. Observe the heifers at least four or five times daily during the last 3 weeks of pregnancy.

Management at calving

Calve grazed heifers in their field or paddock if possible. Housed heifers should calve in familiar surroundings. Avoid moving them to a calving box unless essential for adequate assistance. Observe hourly when calving starts. Too frequent observations can delay calving. Watch for signs of fear, abnormal pain, or distress, and be ready to assist if these are noted or if calving is prolonged.

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If calving aids are used, instruction should be given as to the correct method of application. Call professional advice.

Conclusion

Dystocia of maternal source may be caused by uterine indolence, small pelvic size, failure of cervical dilation, and uterine torsion. Fetomaternal disproportion occurs due to a mismatch between the calf's birth weight and conformation and the dam's size and conformation. Calf birth weight is the single most important fetal factor affecting the threat of dystocia in heifers, similar to that the larger the calf, the higher the chance of delicate calving. The effect of the breed of sire upon the calf's birth weight has long been recognized. In monotocous species, posterior presentation is associated with an increase in the risk of dystocia.

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