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Dystocia in Cattle in Tropical Regions

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Introduction

The dystocia or difficult in birth is a significant challenge in the cattle management particularly in the tropical regions. It refers to the challenges encountered during the birth process that leads to complications for both the cow and the calf. Dystocia leads to prolonged labour, fetal distress and increased mortality rates which in turn making it as a critical factor for the cattle producers. Learning the causes, incidence, pathophysiology, clinical symptoms, diagnosis, treatment, control and prevention of dystocia is essential to improve the reproductive outcomes and improve the animal health and welfare.

Types of dystocia

- Obstructive dystocia: It is caused by physical obstruction in the birth canal.
  - ✓ **Fetal malposition:** Improper presentation/position of the calf such as breech presentation or transverse presentation leads to dystocia.
  - ✓ **Oversized fetus:** A calf that is too large for the birth canal which is common in heifers or when there is poor nutrition.
  - ✓ **Pelvic conformation:** Poor or insufficient size or deformed shape of the pelvis of cows affects the passage of the calf.
- **Functional dystocia:** This is due to weak or ineffective contractions of the uterus during the parturition.
  - ✓ **Uterine inertia**: This is due to lack of sufficient contractions of the uterus to push the calf out which is due to fatigue, electrolyte imbalances or hormonal disorders.

Causes

The dystocia in cattle is caused by maternal and fetal factors.

Maternal factors

- **Pelvic size:** Improper pelvic size in the heifers or cows leads to difficulties during the parturition especially in the larger calf than the average size.
- **Age and parity**: First-calf heifers are commonly more prone to the dystocia due to inadequate pelvic development whereas the older cows also exhibit the complications from the age-related conditions.
- **Body condition:** Overly fat or thin cows exhibit the higher risks during the calving due to poor muscle tone or energy reserves.
- **Uterine contractions:** Insufficient or improper uterine contractions affect the progress of the parturition.

Fetal factors

- **Fetal size:** Significantly large than normal calves is called as macrosomia which in turn leads to dystocia i.e. difficulty during parturition.
- **Abnormal presentation:** Malpresentation of the fetus such as breech or lateral position leads to obstruct delivery.
- **Multiple births**: Delivery of twins in the twin pregnancies leads to higher complications during calving leads to dystocia.

Environmental factors:

- **Heat stress**: In the tropical regions, higher temperature humidity index (THI) accelerates the calving difficulties (dystocia) which in turn affect the uterine contractions and the general health.
- **Poor nutrition**: Insufficient nutrition especially during pregnancy in turn affect the fetal growth and development and maternal health which in turn leads to dystocia.

Incidence

The incidence of dystocia in cattle varies widely based on the managemental practices, breed, and environmental conditions. Estimates suggest that dystocia affects 5-15% of calvings in beef cattle and up to 30% in the

dairy cattle particularly in the high-producing herds. The cattle in the tropical regions exhibit higher levels of dystocia due to the combined effects of the heat stress, nutritional deficiencies and poor managemental practices.

Pathophysiology

- **Inadequate/insufficient uterine contractions:** Ineffective/insufficient uterine contractions delay the progress of parturition leads to prolonged delivery times.
- **Mechanical obstruction:** Higher size fetus with smaller size maternal pelvis create the mechanical obstruction and prevent the normal parturition.
- **Fetal distress:** Longer period dystocia due to fetal hypoxia leads to stillbirth or injury during the delivery.

Clinical symptoms

- **Prolonged labour:** Prolonged labour for more than 2-4 hrs without progress is observed.
- **Straining and discomfort:** The cow exhibits the signs of distress such as straining, vocalizing or restlessness indicates straining and discomfort.
- **Abnormal presentation:** Abnormal presentation of the fetus visible externally (tail or hooves) or detectable during the vaginal examination.
- **Swelling of the vulva**: The vulva is swollen due to prolonged straining and fetal pressure.

Diagnosis

- **Clinical history:** Collection of the information related to the cow's previous calving history, gestation period and clinical signs of distress.
- **Physical examination:** A complete examination such as assessing the abnormal presentations, swelling of genitalia and other signs of distress.
- **Vaginal examination:** Manual per rectal examination helps to determine the presentation, position and posture of the fetus and assess the degree of the cervical dilation.

Corrections of dystocia

Dystocia requires immediate correction or intervention to ensure the safety of both the cow and the calf.

Assisted delivery

- ✓ Prepare the environment with a clean and dry area for the cow to calve.
- ✓ Restraint the cow with calmly with use of a halter and assistive devices to keep her from excessive movement.
- ✓ Apply sufficient lubrication (water-soluble gel) for easy handling of the calf and reduce the friction.

Manual manipulation

- ✓ **Fetal positioning:** Attempts to be made to manipulate the calf into the proper position (head and forelegs first). This attempts involves rotation of the calf and adjust the legs to align properly within the birth canal in proper for easy traction.

Use of calving chains or pullers: Attach the calving chains around the calf's feet (above the fetlocks) to assist with forceful pulling. Steady and gentle traction are applied during contractions allow the cow to push and pulling the calf with each contraction.

Veterinary intervention

- ✓ **Consultation of a veterinarian:** In severe cases or if previous methods are unsuccessful, it is better to contact a veterinarian for assistance.
- ✓ **Surgery:** A caesarean section (C-section) is necessary especially if the calf is in a position that cannot be corrected and removed.
- ✓ **Medications:** Calcium, glucose or oxytocin is required to stimulate the uterine contractions or to improve the cow's energy levels.

Post-dystocia care

- ✓ **Monitor the cow:** Monitor the cow for signs of the retained placenta, uterine infection or uterine prolapse.
- ✓ **Nutritional support:** Supplement adequate nutrition and hydration to help for recovery.
- ✓ **Calf care:** The calf receives need to get sufficient colostrum immediately and monitor its health.

Control

- **Genetic selection**: The breeding stock with a history of ease of calving help to reduce the incidence of dystocia.
- **Nutrition management**: A balanced feed during gestation period supports the fetal development and reduces the risk of complications.
- **Regular health monitoring**: Regular veterinary health checks and monitoring the signs of dystocia facilitate the early intervention.

Prevention

- **Proper heifer management:** The heifers are adequately fed and managed to promote for the proper pelvic development before their first calving.
- **Calving preparation:** The calving areas should have adequate space and access to assistance during the calving process.
- Monitoring the environmental conditions: Measures are to be implemented to mitigate the heat stress such as providing the shade and adequate ventilation.
- **Education and training:** Training to the farm personnel on the calving management helps to improve the preparedness for the difficult deliveries.

Conclusion

The dystocia is one of a significant reproductive challenge in the dairy cattle especially in the tropical regions where the environmental stressors and management practices accelerates the condition. Understanding the causes, symptoms and effective managemental strategies is essential to mitigate the effect of dystocia on the reproductive performances and animal health and welfare. The proper nutrition, monitoring the calving process and employ the proactive managemental practices help the cattle producers to reduce the incidence of dystocia and improve the herd health.