VETERINARY TODAY INTERNATIONAL
ISSN 2583-8288

Uterine Inertia in Buffaloes

P. Perumal

Division of Animal Science
ICAR-Central Island Agricultural Research Institute
Sri Vijaya Puram, Andaman and Nicobar Islands
DOI:10.5281/Veterinarytoday.18519470

Introduction

Uterine inertia is defined as the insufficient or lack of contraction of the uterine muscles, which is necessary for the expulsion of the fetus and placenta during and after parturition in livestock species. It occurs during any stage of labour; however, it is most commonly observed in the second stage of labour (the stage when the fetus is being delivered) or in the postpartum period when the placenta should be expelled out. In tropical/sub-tropical regions, the incidence of uterine inertia is increased due to the factors such as heat stress, poor nutrition and managemental practices. This uterine inertia leads to significant complications such as retention of placenta, postpartum infections and delayed recovery for the buffalo if not addressed promptly.

Causes:

Uterine inertia is classified into primary and secondary types based on its etiologies.

Primary causes (Functional)

- **Hypocalcemia (low blood calcium):** The calcium plays an important role in the muscle contraction. Inadequate calcium concentration leads to lower uterine muscles' ability to contract effectively during parturition leads to uterine inertia.
- **Hormonal imbalances:** Disruption in the normal hormonal changes that occur during parturition (oxytocin and prostaglandins) leads to impair of uterine contractions.
- **Overuse of oxytocin or other uterine stimulants:** Excessive use of oxytocin specially to assist in labour leads to uterine exhaustion and making it is difficult for the uterus to contract normally.

Secondary causes (associated with other conditions)

- Dystocia (difficult labour): Prolonged labour due to incorrect fetal position, large fetus size or narrow birth canal leads to loss of uterine tonicity and loss of uterus's ability to contract efficiently.
- Multiple births: In some cases, especially parturition with twins or triplets, the uterus may become overextended leads to uterine inertia.
- Infection or inflammation of the uterus (endometritis): A uterine infection leads to impair the muscular function of the uterus which in turn induce uterine inertia.
- Excessive fat accumulation: Obesity in buffaloes leads to less effective uterine contractions during parturition.
- Nutritional deficiencies: Deficiencies in some nutrients like magnesium, phosphorus or energy leads to weaken uterine muscles which in turn affect their ability to contract results in uterine inertia.

Environmental Factors

- Heat stress: The hot and humid conditions in the tropical regions affect the normal function of the uterus leads to uterine inertia. Stress during the parturition decreases the release of essential hormones such as oxytocin leads to poor uterine contractions.

Incidence:

The incidence of uterine inertia in the buffaloes in tropical/sub-tropical regions is determined by various factors such as the local climate, nutrition and farming practices. Buffaloes in tropical/sub-tropical regions are more susceptible to heat stress which in turn exacerbate the uterine inertia. The incidence is higher in buffaloes which are maintained under the poor nutritional conditions especially those are suffering from calcium-deficiency or have inadequate trace mineral intake. Additionally,

the primiparous buffaloes (those calving for the first time) and older animals that have undergone multiple calvings are more prone to uterine inertia. Buffaloes that experience dystocia or have large calves are also having higher risk of developing uterine inertia.

Pathophysiology

The primary role of the uterus during calving is to contract and help to expel the fetus and placenta. Uterine inertia is due to impaired uterine contraction which in turn prevents these essential functions.

- **Lack of contraction:** Uterine muscles primarily the myometrium depends upon the calcium and specific hormonal signals (like oxytocin) to contract. In uterine inertia, either the myometrium fails to respond to these signals or the signals themselves are insufficient leads to incomplete or absence of contractions.
- **Obstructed expulsion:** The uterus is unable to contract properly due to either the fetus or the placenta is retained leads to secondary complications such as retention of placenta, uterine infection and even sepsis.
- **Delayed expulsion of the placenta:** The uterus fails to contract post-delivery and the placenta is not expelled within the normal time frame (12-24 hours) leads to higher risk of uterine infection.

Clinical Symptoms

The buffaloes suffering from uterine inertia exhibit the following clinical signs:

- Prolonged labour: The second stage of labour (delivery of calf) lasts longer than usual (more than 1-2 hours). The buffalo strains; however, the fetus or placenta is not expelled.
- **Failure to expel placenta**: After the calf is born, the placenta is not expelled within the normal time frame (12-24 hours).
- **Signs of distress:** The buffalo shows the signs of restlessness, depression or panting due to discomfort or prolonged labour.
- **Abnormal posture or positioning**: The buffalo remains in lying down or adopt abnormal positions to try to push out the fetus.
- **Foul-smelling vaginal discharge:** This is common in the retained placenta or uterine infection.
- **Decreased milk production**: Due to prolonged labour and potential infection, the milk yield is decreased.
- **Elevated body temperature:** The uterine infection occurs due to the result of uterine inertia leads to development of fever.

Diagnosis

The diagnosis of uterine inertia in buffaloes is typically based on clinical signs, history and examination.

- **History of prolonged labour:** The buffalo's calving history such as the duration of labour and any signs of dystocia are providing the important clues.
- **Physical examination:** A veterinarian will assess the animal for signs of uterine distension, failure to expel the fetus or placenta and vaginal discharge.
- **Rectal examination**: A rectal exam is to be done to evaluate the size and tone of the uterus and determine whether there is any resistance or blockage.
- **Ultrasound:** Ultrasound is used to detect the presence of the fetus, the condition of the uterus and any abnormality in the placental membranes.
- **Laboratory tests:** Blood tests is helpful to identify the underlying conditions such as hypocalcemia, infections or electrolyte imbalances.

Treatment

The treatment of uterine inertia depends on the severity of the condition and its underlying causes.

- **Calcium supplementation:** Calcium gluconate or calcium borogluconate is to be administered intravenously or subcutaneously to treat the hypocalcemia, which is a common cause of uterine inertia. This helps to stimulate the uterine contractions and to expel the fetus or placenta.
- **Oxytocin administration:** Oxytocin is commonly used to induce the uterine contractions and help expel the placenta or fetus. However, care must be taken not to

overuse oxytocin as it leads to uterine exhaustion.

- **Manual assistance:** In cases of retained fetus or placenta, manual extraction is necessary particularly if the fetus is not expelled after uterine contractions are stimulated. This should only be done by a skilled veterinarian to avoid injury to the uterus. Antibiotic therapy is required in a secondary uterine infection (endometritis), appropriate antibiotic therapy should be administered to prevent the spread of infection. Supportive therapies such as intravenous fluids and anti-inflammatory medications are advised to stabilize the buffalo and reduce the inflammation.

Control and Prevention

Effective prevention of the uterine inertia in the buffaloes in the tropical/sub-tropical regions is involved with improvement on the managemental practices.

- **Proper nutrition**: Adequate dietary intake of calcium, magnesium and other important minerals especially during the late gestation period. The complete balanced nutrition helps to prevent the hypocalcemia (milk fever) and improve the uterine muscle function/contraction.
- **Heat stress management:** Sufficient shelter with higher ventilation and clean, hygiene potable water during the calving helps to prevent the heat stress which in turn impair the uterine contractions.
- **Minimize the dystocia:** Adequate pre-calving care practices such as monitoring for the signs of dystocia and provide the assistance during the difficult calvings help to reduce the risk of the uterine inertia.
- **Routine veterinary care:** Regular veterinary health check-ups helps to detect/diagnose any disorders such as nutritional deficiencies, infections or dystocia to prevent the uterine inertia.
- **Monitoring during parturition:** Proper and close monitoring of the parturition process help to identify/diagnose the uterine inertia early and allow the timely intervention such as calcium or oxytocin administration helps to reduce the incidence of uterine inertia.

Conclusion

The uterine inertia is a significant reproductive factor in buffaloes in tropical/sub-tropical regions which lead to complications such as retention of placenta, uterine infections and reduced fertility. Understanding its causes, clinical signs and implementing proper prevention and treatment strategies, farmers can reduce the incidence of uterine inertia and improvement in the reproductive success in their herds. Proper nutrition, management and veterinary care are key to prevent this condition and ensuring the overall health of buffaloes.