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Case Study

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Addressing Primary Uterine Inertia As A Cause of Dystocia in Sow: A Therapeutic Approach.

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Abstract

Dystocia resulting from uterine inertia is an occasional occurrence in sows. A pluriparous Large White Yorkshire (LWY) pig, aged 4 years, was presented with difficulty in the farrowing process. This difficulty persisted for the last 4 hours following the delivery of one fetus. Following a comprehensive clinico-gynaecological examination, the condition was identified as dystocia due to primary uterine inertia. To address the issue, the sow was administered a combination of therapeutic agents, including Cloprostenol, Methylergometrine, Valethamate bromide, Oxytocin, and Calcium. This treatment regimen resulted in the successful delivery of a total of 19 piglets.

Key words: Dystocia, Pig, Inertia, Cloprostenol, Methylergometrine, Valethamate bromide, Oxytocin, Calcium

Introduction

Uterine inertia refers to weak or absent uterine contractions during parturition, which hinders the natural progression of the fetus through the birth canal. This lack of uterine contraction leads to a state of calmness within the uterus, impeding the smooth birthing process. Uterine inertia is categorized into primary and secondary forms (Jackson, 1995). Primary uterine inertia (PUI) involves cervical dilation and the fetus assuming a normal presentation, position, and posture, but delivery is prevented due to insufficient uterine contractions. On the other hand, secondary uterine inertia (SUI) occurs when the uterine muscles become fatigued, often as a result of prolonged efforts to deliver a mispositioned, oversized fetus or due to obstructions in the birth canal. This exhaustion leads to diminished or sporadic uterine contractions. PUI is occasionally observed in pigs, more frequently occurring in other species, often stemming from hormonal imbalances (Jackson, 1995). SUI, characterized by weakened or sporadic contractions, arises when the uterine muscles become depleted due to challenges in delivering a fetus or due to obstructions in the birth canal. Occasional instances of dystocia stemming from uterine inertia are observed in sows. SUI elongates the farrowing process and creates an unfavorable uterine environment, which can subsequently impact the animal's

reproductive capacity (Jackson, 1975). Failure to implement suitable therapeutic interventions can ultimately lead to the decision to cull the animal. Typically, two medications, namely oxytocin and calcium levulinate, are employed to alleviate secondary uterine inertia. Oxytocin serves to enhance the frequency of contractions, while calcium gluconate bolsters the strength of myometrial contractions.

Case History and Observation:

A pluriparous sow in her 5th parity, at full term, presented with dystocia and was brought to the TVCC, LUVAS Hisar clinics. Four hours prior, the sow had delivered one fetus, but subsequent progress had stopped. Initially managed by a local veterinarian in the field, the case was subsequently referred to the university clinic for advanced treatment. The sow exhibited a body temperature of 105.6º Fahrenheit. Upon examination, the sow's vaginal canal was properly lubricated using liquid paraffin, and a per vaginal assessment was conducted. This examination revealed complete dilation of the birth canal and the presence of an additional fetus in the passage.

Fig. 1. Animal with primary uterine inertia

Fig. 2. Dam after complete parturition

The animal's abdomen displayed capaciousness, and its teat was engorged with milk. The diagnosis established dystocia arising from PUI. To address this condition, the animal received the following injections: 0.5ml of "Inj. Pragma" (containing cloprostenol 250 mg/ml, from Intas Pharmaceuticals) intramuscularly, 1ml of "Inj. Epidosin" (containing valethamate bromide 10mg/ml, from TTK Healthcare Limited) intramuscularly, and 2ml of "Inj. Syntocinon" (containing oxytocin 5 IU/ml) dissolved in 500ml of normal saline solution, administered slowly intravenously with continuous monitoring. Additionally, 3ml of "Inj. Calcimust" (containing calcium levulinate - 76.4mg, cholecalciferol 5000 IU, and cyanocobalamin 50mcg/ml, from Vet Mankind) was administered intramuscularly, and management of hypothermia was implemented using ice packs and cold water. Promptly following the treatment, two more live female fetuses were delivered within a span of 10 to 15 minutes. Subsequently, the animal was given 10 IU of "Inj. Oxytocin" after every 3 hours, for a total of 5 administrations, resulting in the intermittent delivery of 16 more fetuses. Ultimately, the dam

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successfully delivered a total of 19 fetuses, comprising 10 females and 9 males. Regrettably, only 10 piglets out of the 19 were able to survive.

Discussion

Uterine inertia arises from irregular oxytocin hormone release and weak uterine muscle contractions due to insufficient energy and maternal blood calcium levels. Addressing this condition requires external supplementation of energy, oxytocin, and calcium to overcome SUI in sows. To mitigate SUI, it is essential to bolster energy, oxytocin, and calcium levels externally. Late-stage farrowing administration of oxytocin effectively enhances uterine contractions' frequency, even in the presence of fatigued muscles, while maintaining adequate blood flow (Mota *et al.,* 2007). However, cautious oxytocin use is imperative, as improper dosing can lead to complications such as uterine hyperstimulation, ruptured uterus, and fetal demise due to asphyxia (Dominguez *et al.*, 1999; Phaneuf *et al.*, 2000). Studies have demonstrated successful uterine inertia treatment through intravenous calcium infusion, which enhances myometrial contraction strength (Davidson, 2003). Nevertheless, it's crucial to exercise caution when administering calcium, as rapid delivery and high concentrations may trigger cardiac arrhythmia (Allen *et al.,* 1993).

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