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Successful Management of Dystocia Due to Incomplete Cervical Dilatation with Secondary Uterine Inertia in a Berkshire Sow: A Case Report

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ABSTRACT

Dystocia in sows is an important reproductive problem that can adversely affect piglet survival and sow health. The present case describes dystocia associated with incomplete cervical dilatation (ICD) followed by secondary uterine inertia in a 4-year-old pluriparous Berkshire sow at full-term gestation. The sow was presented with prolonged straining, anorexia, dullness, and depression. Per-vaginal examination revealed incomplete cervical dilatation, while ultrasonography indicated both live and dead fetuses. Radiography confirmed the presence of 14 fetuses. The condition was managed initially with cloprostenol sodium, valethamate bromide, calcium-magnesium borogluconate, dextrose, antibiotics, and supportive therapy. Complete cervical dilatation was achieved; however, the sow subsequently developed uterine inertia and failed to expel the fetuses despite oxytocin administration. Manual per-vaginal extraction was therefore performed. A total of 14 piglets were delivered, including nine live and five dead fetuses. The sow recovered uneventfully with supportive postoperative therapy. The case highlights the importance of timely diagnosis and appropriate management of ICD and secondary uterine inertia in sows.

INTRODUCTION

Dystocia is a less common obstetrical issue in pigs compared to other farm animals. As a polytocous species, the farrowing process in pigs typically involves a longer first stage (cervical dilatation) and second stage (delivery of piglets), which usually requires minimal assistance during farrowing, with more focus on managing the piglets afterward (Tukheswar et al., 2018). In pigs, uterine inertia is the primary cause of dystocia, more so than other factors (Roberts, 2004).

Uterine inertia is generally divided into two types: primary and secondary. In primary uterine inertia, the cervix dilates, and the fetus is in the correct position, but delivery does not occur due to the absence of uterine contractions. This type is typically caused by hormonal imbalances. On the other hand, secondary uterine inertia occurs when the uterine muscles become exhausted, leading to failure to deliver a fetus that may be oversized or positioned unfavourably, or when there is an obstruction in the birth canal (Roberts, 2004).

CASE HISTORY AND OBSERVATION

A 4-year-old pluriparous Berkshire sow in its fourth parity was presented to the Veterinary Clinical Complex (VCC), College of Veterinary and Animal Sciences, Udgir, with a history of prolonged straining at full-term gestation for 16 hours, anorexia, dullness, and depression. Clinical

examination revealed a rectal temperature of 101.2 °F, tachycardia, pink mucous membrane, respiration rate of 18 breaths per minute, heart rate of 43 beats per minute, and other parameters were normal. The cervix permitted the passage of only two fingers, indicating incomplete cervical dilatation. Ultrasonographic examination confirmed the absence of fetal cardiac activity in some of the visualized fetuses, while the remaining fetuses exhibited normal cardiac activity (Fig. 1). Radiographic examination revealed a total of 14 fetuses within the uterus (Fig. 1). On the basis of history, clinical examination, USG, and X-ray, this case was confirmed as dystocia due to ICD.



Figure 1. Ultrasonographic examination (A), Radiograph demonstrating fetuses (B), Manual extraction of fetuses following complete cervical dilation (C), and Live piglet delivered after assisted farrowing (D).

RESULT

The sow was diagnosed with dystocia due to ICD with a differential diagnosis of uterine inertia, uterine torsion, and an oversized fetus. The sow was treated with antihistamine (chlorpheniramine maleate) 4 ml; synthetic prostaglandin cloprostenol sodium 250 mcg (1 ml) intramuscularly; valethamate bromide 7 ml intravenously; Dextrose 5% 500 ml intravenously; calcium magnesium borogluconate 50 ml intravenously slowly; antibiotics ceftriaxone and tazobactam @ 10 mg/kg bwt intravenously; and multivitamin 5 ml intramuscularly. The sow resumed feed intake following initial treatment. A per-vaginal examination was conducted 18 h post-treatment, which revealed a fully dilated cervix but an absence of straining. Hence, treatments as of the next day were given 20% dextrose, 50 ml of calcium magnesium IV slowly, and 5 IU of oxytocin after 15 min. Sow was given straining but was unable to expel the fetus; hence, manually, 7 fetuses were removed per vaginal.

After 3 h, given the second dose of oxytocin, 5 IU intramuscularly, but failed to expel the fetus; finally, all remaining fetuses were manually extracted per vaginal. The sow delivered a total of 14 piglets, out of which 9 were live fetuses and 5 were dead fetuses. Post-delivery, the sow was given flunixin meglumine at 1 mg/kg body weight intramuscularly, chlorpheniramine maleate 4 ml intramuscularly, antibiotics ceftriaxone and tazobactam at 10 mg/kg body weight intravenously, oxytocin 5 IU intramuscularly (for placental removal), dextrose 5% 500 ml intravenously, and a multivitamin 5 ml intravenously. On the third day post-treatment, the sow is eating normal food and drinking water. Given treatment on this day were NSAIDs, antibiotics, a multivitamin, an antihistamine by parenteral route, and liquid ebooster, 20 ml per oral route for 5 days.

DISCUSSION

In the present case the occurrence of dystocia was due to incomplete cervical dilation followed by uterine inertia, including lack of uterine muscle contraction. Cervical dilatation during farrowing is regulated by coordinated endocrine changes involving progesterone withdrawal, increased prostaglandin and estrogen activity, relaxin release, and increased oxytocin responsiveness, which together facilitate cervical relaxation and myometrial contractions. Failure or disruption of these processes may contribute to incomplete cervical dilatation and prolonged farrowing in sows (Langendijk et al., 2023).

Secondary uterine inertia is characterized by weakening or cessation of effective uterine contractions after the onset of parturition, most commonly due to uterine exhaustion following prolonged or obstructive dystocia. It may also result from excessive uterine distension due to large litters, excessive fetal fluids, or oversized fetuses, while inadequate fetal stimulation in cases of minimal litters may contribute to the single-puppy syndrome. Other predisposing factors include oxytocin–calcium imbalance, nutritional disturbances, myometrial degeneration, advanced age, hereditary factors, and neuroendocrine dysfunction (Haben and Guesh, 2020).

In field conditions, several outside hormones have been used to make the cervix open up. Valethamate bromide, an antispasmodic, relieves spasms through its parasympatholytic action, leading to cervical dilation. Researchers have observed that valethamate bromide significantly reduces the duration of the first stage of labor (Tukheswar et al., 2019). However, in the present study, along with valethamate bromide, a synthetic prostaglandin is used to achieve cervical dilation. In the present case, uterine inertia is managed by strategic use of oxytocin and calcium borogluconate. Sometimes, administering an excessive dose of oxytocin can lead to uterine hyperstimulation, which may result in uterine rupture and fetal death (Phaneuf et al., 2000). Hence, the failure to overcome uterine inertia was managed by manual delivery of foetuses which will give idea to field veterinarian to face such cases.

CONCLUSION

Dystocia in sow due to incomplete cervical dilation was successfully managed by valethamate bromide and synthetic prostaglandin cloprostenol sodium. And secondary uterine inertia is also successfully managed by oxytocin and calcium and magnesium borogluconate.

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