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Partial fetotomy for resolution of dystocia in a free-ranging hog deer (*Axis porcinus*) with bilateral shoulder flexion

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Abstract

Dystocia is an important cause of perinatal morbidity and mortality in domestic and wild ruminants, with fetal malposture being a major contributing factor in cervids. This report describes the clinical management of dystocia due to bilateral shoulder flexion in a full-term free-ranging hog deer (*Axis porcinus*). A 34 kg doe was presented with prolonged labor and protrusion of the fetal head. Clinical examination confirmed anterior longitudinal presentation, dorsosacral position, and bilateral flexion of the forelimbs. Absence of fetal reflexes and movement established fetal death prior to intervention. As manual mutation was not feasible due to impaction and limited pelvic space, partial fetotomy was performed under epidural anesthesia. Decapitation of the fetal head followed by sequential forelimb extension allowed controlled vaginal delivery of the dead fawn. Supportive therapy and post-procedural care were administered for three days. No intraoperative complications or postpartum disorders were observed, and the dam recovered uneventfully. This case demonstrates that partial fetotomy can be effectively adapted for managing obstructive dystocia in cervids when timely diagnosis and appropriate obstetrical techniques are applied.

Keywords: Bilateral shoulder flexion, cervid, dystocia, fetotomy, hog deer (*Axis porcinus*)

Introduction

Dystocia is a significant cause of perinatal morbidity and mortality in both domestic and wild ruminants, arising from maternal, fetal, or mechanical factors. Among cervids, fetal causes particularly malpresentation and malposture are frequently implicated, with flexion deformities of the head, neck, or limbs constituting major obstructive conditions (Smythe, 1986; Lawrence, 1986) ^[7, 5]. Bilateral shoulder flexion, though less commonly reported, increases the effective thoracic diameter of the fetus and prevents its passage through the maternal pelvic canal, thereby necessitating obstetrical intervention. In farmed and semi-domesticated deer populations, dystocia has been associated with calf birth weight, pelvic conformation, nutritional status, and reproductive management practices (Mee, 2008; Woodbury *et al.*, 2006) ^[6, 10]. Studies in sambar deer (*Cervus unicolor*) and other cervid species indicate that reproductive efficiency, fawn survival, and perinatal mortality are influenced by both maternal and fetal determinants (Haigh *et al.*, 2005; Chan *et al.*, 2009) ^[4, 2]. Similar patterns have been documented in red deer (*Cervus elaphus*), where dystocia contributes substantially to neonatal losses.

The hog deer (*Axis porcinus*), a medium-sized cervid native to South and Southeast Asia, typically has a gestation period ranging from approximately 220 to 230 days, comparable to other small cervids. Most pregnancies result in the birth of a single fawn. As in other deer species, parturition is usually rapid and unassisted; therefore, prolonged labor often indicates fetal maldisposition or obstruction requiring clinical management. Although obstetrical techniques such as mutation, traction, and fetotomy are well established in domestic ruminant practice (Engum & Lyngset, 1970) ^[3], their application in wild cervids remains infrequently documented. Reports describing dystocia management in deer species are limited (Thirumurugan *et al.*, 2014) ^[9], highlighting the need for additional clinical documentation.

The present study describes the clinical management of dystocia due to bilateral shoulder flexion in a free-ranging hog deer (*Axis porcinus*), emphasizing the diagnostic approach, obstetrical intervention, and maternal outcome.

Materials and Methods

A full-term pregnant free-ranging female hog deer (*Axis porcinus*), weighing approximately 34 kg, was presented with a history of prolonged labor and protrusion of the fetal head from the vulva (Fig. 1). The case was managed at a veterinary referral facility under field-compatible clinical conditions. Clinical assessment of fetal viability was performed at presentation, and absence of reflexes, corneal response, and detectable fetal movement confirmed fetal death prior to obstetrical intervention.



Fig 1: Protrusion of the fetal head from the vulva in a full-term free-ranging hog deer (*Axis porcinus*) presented with prolonged labor.

Clinical Examination

Physical examination included recording of rectal temperature, heart rate, and respiratory rate. Hydration status was assessed based on mucous membrane appearance and general demeanor. Per-vaginal examination was performed using sterile lubrication to determine fetal presentation, position, and posture (Fig. 2). The fetus was identified in anterior longitudinal presentation with dorsosacral position and bilateral flexion of both forelimbs at the shoulder joints.



Fig 2: Per-vaginal examination and obstetrical manipulation showing anterior longitudinal presentation with dorsosacral position and bilateral shoulder flexion prior to correction. Placement of a small ruminant fetotome for decapitation during partial fetotomy under epidural anesthesia was done.

Pre-operative Management

Supportive therapy was initiated prior to obstetrical intervention. Intravenous fluid therapy was administered to

address dehydration. Dexamethasone was given as supportive medication. Epidural anesthesia was achieved by administering 1 ml of 2% lignocaine hydrochloride in the sacrococcygeal space to reduce straining and facilitate manipulation. The birth canal was lubricated using carboxymethyl cellulose to minimize friction during the procedure.

Obstetrical Procedure

As manual correction was not feasible, partial fetotomy was performed. Decapitation of the protruded fetal head was carried out using a small ruminant fetotome under epidural anesthesia (Fig. 2). Following removal of the head, both forelimbs were corrected alternately using a blunt eye hook. Controlled traction was then applied to facilitate per-vaginal delivery.

Post-procedural Protocol

Post-intervention therapy included intramuscular administration of enrofloxacin (5 ml, IM), multivitamins (1.5 ml, IM), and meloxicam (1.5 ml, IM) for three consecutive days. A 20 ml intrauterine herbal cleanser was administered daily as part of uterine care.

Results

On presentation, the doe was recumbent and dehydrated, with a rectal temperature of 102.8 °F, heart rate of 98 beats/min, and respiratory rate of 34 breaths/min. The fetal head was protruding from the vulva and appeared edematous and dry, suggesting prolonged exposure and obstruction. Per-vaginal examination confirmed anterior longitudinal presentation with dorsosacral position and bilateral shoulder flexion. Manual mutation was not possible due to impaction and restricted intrauterine space.

Partial fetotomy involving decapitation of the fetal head was successfully performed under epidural anesthesia. Following improved intrauterine access, both forelimbs were extended alternately using a blunt eye hook. Controlled traction facilitated complete vaginal delivery of the dead fawn (Fig. 3). No immediate complications such as excessive hemorrhage, vaginal laceration, or uterine rupture were observed during or immediately after the procedure. Post-operative therapy was administered as per protocol. The dam remained clinically stable during the monitoring period and showed progressive improvement in hydration and activity (Fig. 4). No signs of metritis, systemic illness, or retained fetal membranes were observed during the three-day observation period.



Fig 3: Fetus with decapitated fetal head following partial fetotomy procedure



Fig. 4: Post-procedural recovery of the doe following successful vaginal delivery, showing improved clinical condition and stabilization.

Discussion

Dystocia in cervids is relatively less documented compared to domestic bovines, yet fetal malposture remains a primary cause when it occurs (Smythe, 1986; Lawrence, 1986) [7, 5]. Bilateral shoulder flexion increases the effective fetal thoracic diameter and prevents engagement within the maternal pelvic canal. In small-bodied cervids such as hog deer, limited pelvic capacity further compounds the obstruction. Risk factors associated with dystocia in deer include fetal size, pelvic conformation, nutritional status, and reproductive management (Mee, 2008) [6]. In farmed cervid species, perinatal mortality has been correlated with obstructive dystocia and delayed intervention (Haigh *et al.*, 2005; Woodbury *et al.*, 2006) [4, 10]. Although hog deer typically experience rapid and uncomplicated parturition following a gestation period of approximately 220-230 days, prolonged labor should raise suspicion of fetal maldisposition.

In domestic ruminants, bilateral shoulder flexion may sometimes be corrected through repulsion and mutation; however, in wildlife species, anatomical constraints and stress responses often limit prolonged manipulation. When the fetus is non-viable and mutation is impractical, fetotomy remains a rational alternative to cesarean section, particularly in field-compatible settings (Engum & Lyngset, 1970) [3]. Reports describing dystocia management in deer species remain limited (Thirumurugan *et al.*, 2014) [9], and documentation of fetotomy in free-ranging cervids is especially scarce. The present case demonstrates that partial fetotomy can be adapted effectively to cervid obstetrics when performed with adequate stabilization, epidural anesthesia, and proper lubrication.

Early correction was critical in preventing secondary complications such as uterine rupture, septic metritis, or maternal mortality. The favorable maternal outcome supports the clinical feasibility of applying established ruminant obstetrical principles to wildlife practice, provided careful case selection and timely intervention. Wildlife obstetrics sits at an interesting intersection of anatomy, behavior, and logistics. When anatomy narrows the exit and time narrows the margin for error, technique becomes the deciding variable. In this case, disciplined application of a classical ruminant procedure resolved a mechanically obstructive dystocia while preserving maternal health which, in wildlife management, is always the primary objective.

Conclusion

Partial fetotomy was successfully employed to resolve dystocia caused by bilateral shoulder flexion in a free-ranging hog deer (*Axis porcinus*). Manual correction was

not feasible due to fetal impaction and limited pelvic space. Decapitation followed by forelimb extension allowed controlled vaginal delivery. No intraoperative or immediate post-operative complications were observed. The case supports the use of conventional ruminant obstetrical techniques in wildlife practice when timely intervention is performed.

Statements and Declarations

Ethical Approval and Consent to Participate

The clinical intervention was performed as an emergency therapeutic procedure to save the life of the animal. No experimental protocol was involved.

Consent for Publication

Not applicable.

Availability of Data and Materials

All relevant clinical data supporting the findings of this case report are included within the manuscript.

Competing Interests

The authors declare no competing interests.

Authors' Contributions

All authors contributed to case management, data collection, manuscript preparation, and approved the final version of the manuscript.

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