Successful correction of dystocia by Caesarean section in a Persian cat.

A clinical report submitted in partial satisfaction of the requirements for the Degree of Doctor of Veterinary Medicine (DVM)

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Abstract

Dystocia, a rare occurrence in feline obstetrics, poses unique challenges for veterinarians. In this clinical report, we present the case of a 2-year-old Persian queen cat suffering from dystocia due to partial primary uterine inertia. Despite prior treatment attempts with oxytocin, the cat exhibited signs of exhaustion, failed to respond to medicinal therapy, and remained unable to deliver a live fetus even after 36 hours of labor. Faced with a critical situation endangering both the mother and the conceptus, an emergency Caesarean section (C-section) was performed. This surgical intervention successfully retrieved one live fetus, ultimately saving the mother's life. However, the C-section kitten faced challenges, suffering from malnutrition and immunity suppression due to the inability to suckle milk from the mother, particularly colostrum. This case underscores the complexity of dystocia cases in feline patients, emphasizing the importance of timely decision-making, continuous monitoring, and the readiness to transition to more invasive interventions when required. While surgical intervention can be life-saving, it also highlights the need for comprehensive post-operative care and vigilance to ensure the best possible outcomes for both the mother and her kittens.

Keywords: Dystocia, Feline obstetrics, Uterine inertia, Neonatal care, Anesthesia, Post operative care.

Chapter 1

Introduction

Parturition, the natural process of childbirth, typically occurs without complications. However, dystocia, or difficult parturition, can necessitate manual or medical intervention. Fortunately, dystocia is rare in cats, occurring in only about 3.3%–5.8% of births, with Persian cats having a slightly higher incidence (Ekstrand & Linde-Forsberg, 1994; Gunn-Moore & Thrusfield, 1995; Humphreys, 1974; Pretzer, 2008). The causes of dystocia in cats vary, with maternal factors accounting for 67.1% of cases and fetal factors for 29.7% (Ekstrand & Linde-Forsberg, 1994; Jackson, 2004). Uterine inertia, weak or absent contractions during childbirth, is a common cause and can be primary (complete or partial) or secondary due to other complications like fetopelvic disproportion (Jackson, 2004).

In our study, we focus on the surgical management of dystocia caused by partial primary uterine inertia in a domestic cat (Persian) from Bangladesh. This condition, where the uterus becomes fatigued before delivering all fetuses despite initial normal labor, required timely surgical intervention for the well-being of both the mother and the kittens (Jackson, 2004; Jones & Joshua, 1982; Pretzer, 2008).

Chapter 2

Case Report

2.1 Case details

A 2 years-old Persian queen cat, weighing 3 kg body weight, was presented to Teaching and Training Pet Hospital and Research Center (Purbachol) on September 04, 2023 with signs of dystocia. The cat was mated naturally and completed full gestational length of 65 days according to the information provided by the cat owner. Then, the cat showed signs of onset of parturition such as restlessness, anorexia and panting, etc. Then, the queen delivered 2 kittens. The left one was not delivered normally even after 36 hours. Before being presented to the hospital, the queen was treated with Oxytocin (Oxioton-DS) and Multivitamin (Aminovit plus), but these treatments did not work to deliver. Her abdomen was extremely large and she showed no effort to strain.

2.2 Case diagnosis

During a physical examination, palpation revealed abnormal bony structures within the pelvic cavity. To ascertain the situation, an X-ray (Fig 1) was conducted, confirming the presence of a single fetus. Subsequent ultrasonography (USG) affirmed the fetus's location in one uterine horn, accompanied by visible fetal movement. The diagnosis indicated dystocia, necessitating surgical intervention for the removal of the live fetus.

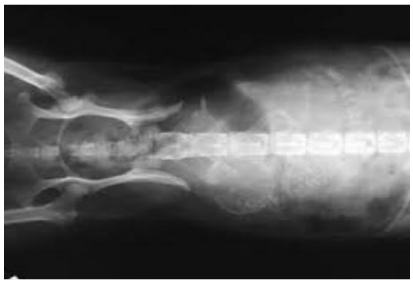

Figure 1: X-ray reveals presence of fetus.

2.3 Surgical procedure

First of all, the queen was injected with a combination of anaesthetic agent- xylazine (Xylazine injection, Indian immunologicals Ltd) and ketamine hydrochloride (G-ketamine,Gonoshasthaya Pharmaceuticals) dosed by 1 mg/kg body weight and 10 mg/kg body weight intramuscularly (IM) as general anaesthesia. For maintainace anesthesia, ketamine hydrochloride was prepared dosed by 5 mg/kg body weight using same brand.After 5 min cat started vomition (Figure 2). Anesthesia was achieved in 15 min. The cat was transferred to the operation table and all limbs were secured using ropes made of surgical gauze. The tongue was pulled out to the side using tongue forceps and the mouth was closed.

The operative site, the abdomen caudal to the umbilicus (Figure 3), was clipped, shaved, disinfected with povidone iodine (Povisep®, Jayson Pharmaceuticals Ltd.) and draped with surgical cloth. A 5–6 cm long incision was made on the ventral abdominal midline, 1 cm caudal to the umbilicus. Skin, subcutaneous tissue, linea alba, and peritoneum were sequentially incised (Figure 4). Then, the uterus was identified and exteriorized through the incision (Figure 5). A longitudinal incision was made on the greater curvature of the uterus close to the bifurcation of the uterine horns, avoiding large blood vessels and the placental belt (Figure 6). The fetus in the left horn was removed first (Figure 7). The umbilical cord was ligated and transected. Uterine incision was closed using cushing suture(Figure 8) .The peritoneum and muscle tissue were closed using simple continuous suture, and the subcutaneous tissue was closed by applying subcuticular suture with cat-gut 2-0 (Figure 9).Finally a security suture was done.

Figure 2: Vomition after anesthesia

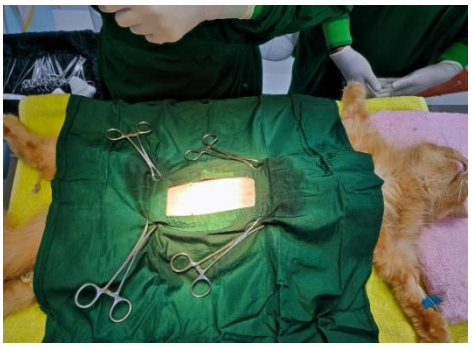

Figure 3: Patient preparation

Figure 4: 5 cm Incision caudal to umbilicus

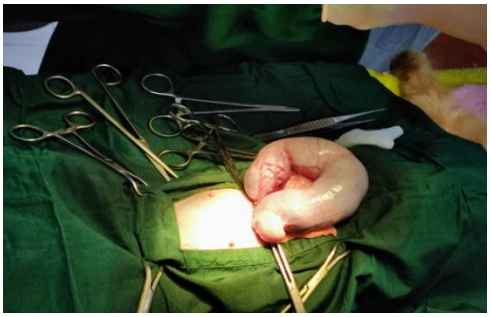

Figure 5: Uterine horn exteriorized.

Figure 6: Uterine incision

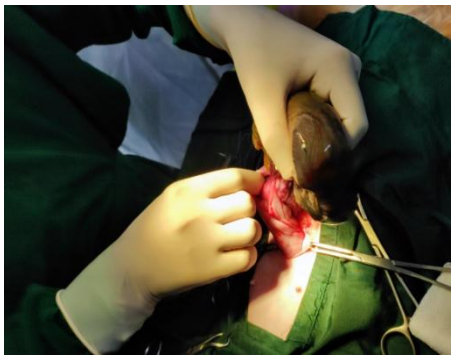

Figure 7: Fetus removing out

Figure 8: Uterine cushing suture

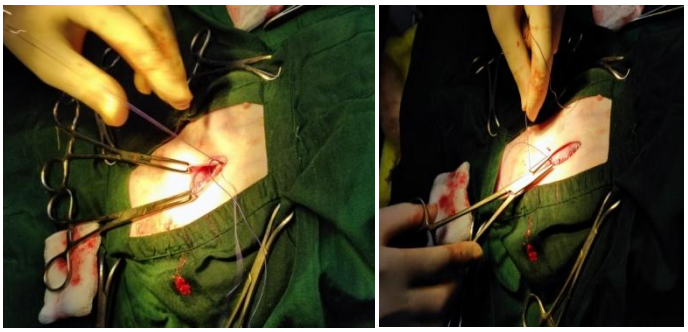

Figure 9: Simple continuous suture in muscle & peritoneum. And subcuticular suture in subcutaneous tissue.

2.4 Post-operative care

As post-operative care, the queen was treated with a broad-spectrum antibiotic, ceftriaxone (Trizon Vet®, The ACME Laborotory Ltd.) @ 50 mg/kg bodyweight IM at 24 hr intervals for 7 days, a pain killer, meloxicam (Melvet Vet®, Acme Laboratories Ltd.) @ 3 mg/kg body weight, IM once daily for five days and with a antihistaminic, Pheniramine maleate(Alarvet,popular pharmaceuticals Ltd) @ 2mg/kg. External security sutures were removed after complete healing.

Chapter 3

3.1 Result

In the present case, one live fetus along with their placenta was removed by C-section in a Persian cat (Figure 10). By 3 days after the C-section, the cat obtained by C-section became died due to inability to suck milk by own attempt; as a result it suffered severely malnutrition. The queen cat returned to all normal activities after 14 and the two kittens obtained by normal delivery became also healthy, including eating, drinking, playing, urinating, and defecating (Figure 11).

Figure 10: Live fetus obtained by C-section

Figure 11: Two healthy kittens and the queen after 15 days of surgery

3.2 Discussion

In the feline world, dystocia, a rare occurrence according to Jackson (2004), presents veterinarians with two treatment options: medicinal and surgical interventions (Pretzer, 2008; Traas, 2008). Oxytocin, often supplemented with calcium borogluconate and glucose solution, stands as the preferred medication to combat uterine inertia in cats (Jackson, 2004). 60% to 80% of dystocia cases require surgery and that only 20% to 40% can be successfully treated by various combinations of medical therapy and manipulation (Van Goethem, 2016).However, our case deviated from the norm. The queen had been previously treated with oxytocin elsewhere, but upon her arrival at our hospital, she exhibited no signs of straining, failed to respond to medicinal therapy, and showed signs of exhaustion, all while fetal movement persisted, indicating a distressed uterus (Talukder et al., 2021).In the realm of feline obstetrics, it's worth

noting that parturition can naturally extend up to 48 hours (Jutkowitz, 2005; Sparkes et al., 2006). Despite this, our patient remained unable to deliver. Faced with a dire situation where both the dam and the conceptus were at risk, we made the decision to perform an emergency C-section, a significant surgical procedure involving the incision of both the abdomen and the uterus (laparohysterotomy). This choice was made after 36 hours of dystocia, a crucial factor in the outcome of such a procedure. Our decision proved successful, resulting in the retrieval of one live fetus. More importantly, it saved the dam's life. Subsequently, the C-section not only facilitated the removal of the fetus but also it preserved the life of the mother cat. Neonates are extremely susceptible to hypoxemia and hypothermia and should also be inspected for obvious birth defects such as palatoschisis, atresia ani, and limb deformities (Van Goethem, 2016). In our case, the kitten was suffering from malnutrition and immunity suppression due to inability of suckling milk from mother, specially colostrums. This case prompts reflection on the complexity of dystocia cases in feline patients. Despite the rarity of dystocia, when it does occur, a multifaceted approach is necessary, considering factors such as the duration of labor and the response to medicinal interventions. In this instance, the failure of initial medicinal therapy and the exhaustion of the uterus indicated the necessity for surgical intervention, highlighting the critical role of timely decision-making in saving both the dam and her offspring. But in our case, the kitten obtained by c-section died. This case underscores the importance of continuous monitoring, adaptation of treatment strategies, and the readiness to transition to more invasive interventions when required, ensuring the best possible outcome for both the mother and her kittens.

3.3 Conclusion

This case of dystocia in a Persian queen cat emphasizes the critical importance of recognizing uterine distress signs and the necessity for timely surgical intervention when medicinal treatments fail. The decision to perform an emergency Caesarean section after 36 hours of unproductive labor was pivotal, ensuring the survival of the distressed dam. Challenges post-surgery underscored the vulnerability of neonates, emphasizing the need for continuous monitoring and adaptable strategies. This case highlights the essential role of quick decision-making and expert care in ensuring the best possible outcome for both the mother and her kittens in complex clinical scenarios.

3.4 Recommendations

In this clinical report, a case of dystocia in a 2-year-old Persian queen cat is presented. The cat suffered from partial primary uterine inertia, a rare condition in feline obstetrics. Despite prior treatment attempts with oxytocin, the cat exhibited signs of exhaustion and failed to deliver a live fetus even after 36 hours of labor. Faced with a critical situation endangering both the mother and the conceptus, an emergency Caesarean section (C-section) was performed, successfully retrieving one live fetus and saving the mother's life. However, the C-section kitten faced challenges, including malnutrition and immunity suppression due to the inability to suckle colostrum. The case underscores the complexity of dystocia cases in feline patients, emphasizing the importance of timely decision-making, continuous monitoring, and readiness to transition to more invasive interventions when required. The report highlights the need for comprehensive post-operative care, neonatal support, client education, a collaborative approach among veterinary specialists, and ongoing research in feline obstetrics to ensure optimal outcomes for both the mother and her kittens in dystocia cases.

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Biography of Author

I am Manirul Hasan Suman, the second child of Md. Manjur Alam and Bulbul Akter, currently pursuing Doctor of Veterinary Medicine (DVM) degree at Chattogram Veterinary and Animal Sciences University within the Faculty of Veterinary Medicine. My academic journey began when I successfully completed the Secondary School Certificate (SSC) examination in 2014 at Chakaria Korak Biddaypith, Cox's Bazar, achieving an impressive GPA of 5.00. Subsequently, in 2016, I continued my educational pursuits at Patiya Gov't College, Chattogram, where I obtained a commendable GPA of 4.83 out of 5.00 in the Higher Secondary Certificate (HSC) examination.

At present, I am deeply engaged in a year-long internship program, during which I am eagerly honing my practical skills and expanding my knowledge base. I am driven by a strong passion for my field of study, as I aim to equip myself with the requisite skills and contemporary knowledge necessary to excel in the ever-evolving landscape of veterinary science.