

A Successful Caesarean Operation in a Persian cat: A Case Report



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Submitted By:

Md. Jobair Hakim

Roll No: 18/54

Reg. No: 03017

Intern Id: 50

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**Faculty of Veterinary Medicine
Chattogram Veterinary and Animal Sciences University
Khulshi, Chattogram – 4225, Bangladesh**

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Approved By:

Dr. AMAM Zonaed Siddiki

(Professor)

Department of pathology and parasitology

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University

Khulshi, Chattogram – 4225, Bangladesh

Table of Contents

Contents	Page no
Statement of author	05
List of acronym used	06
Abstract	07
Chapter 1: Introduction	08-09
Chapter 2: Case presentation	10-14
2.1 Case history, general and clinical examination.....	10
2.2 Case diagnosis.....	10
2.3 Surgical technique and management.....	10-15
2.3.1 Patient preparation and premedication.....	10
2.3.2 Animal restraining followed by anesthesia.....	11
2.3.3 Surgical procedure.....	12
2.3.4 Post-operative care of queen cat.....	13
2.3.5 Study photo gallery.....	12-15
Chapter 3: Discussions	16
Chapter 4: conclusion	17
References	18
Acknowledgement	19
Biography	20

List of figures

Figure	Title	Page no
Figure 1	X-ray showing the number of fetus of queen cat before surgery.....	13
Figure 2	Incision site prior to surgery (1-2 cm below umbilicus).....	13
Figure 3	Exposing the gravid uterus with fetus.....	13

Figure 4	Incision on the wall of uterus avoiding blood vessels.....	13
Figure 5	Removing placenta from dead fetus.....	14
Figure 6	Three dead kittens.....	14
Figure 7	Closing of uterus by Czerny lambert suture.....	14
Figure 8	Suturing muscle layer by simple continuous pattern.....	14
Figure 9	Applying Betadine @ 5% ointment in the incision area.....	15
Figure 10	Recovered from anesthesia after surgery.....	15
Figure 11	Post-operative care of queen cat by applying bandage.....	15
Figure 12	Delivered fetus (24 hours ago).....	15

Statement of Author

I, Md. Jobair Hakim, hereby certify that I have successfully completed all tasks included in this report. Books, national and international periodicals, websites, and other references were used to gather the material. All citations are properly acknowledged. As a result, I am entirely responsible for gathering, combining, preserving, and publishing all of the data that has accumulated in this report.

The Author

Date

List of Acronym Symbols Used:

Abbreviation	Elaboration
%	Percentage
No.	Number
e.g.	Example
etc.	Et cetera
ET. al	And his associate
CS	Caesarean section
GA	General Anesthesia
I/M	Intramuscular
I/V	Intravenous
S/C	Subcutaneous
USG	Ultrasonography
TTPHRC	Teaching and Training Pet Hospital and Research Center

Abstract

The present case study was conducted at Dhaka's Teaching and Training Pet Hospital and Research Center (TTPHRC). A one-year-old Persian cat weighing 3 kg with a history of single fetus birth 24 hours prior followed by dystocia and malnutrition. On examination, the queen was lethargic and depressed having no signs of uterine contractions and had remarkably enlarged abdomen, teat and mammary vein. While performing X-ray and USG it confirmed that three fetuses were in the uterine horn with no fetal movement and heartbeat. Uterine inertia followed by dystocia shown in the cat. Caesarean section was performed aseptically under the general anesthesia using ketamine and three dead kittens was removed from that queen. The queen was fully recovered after surgery and post-operative care.

Key words: Persian cat, dystocia, caesarean section, TTPHRC

Chapter 1

INTRODUCTION

Parturition is a natural physiological process that normally occurs on itself. A Cesarean section, sometimes known as a C-section, is a surgical operation used for taking away kittens from the uterus. This is normally done as an emergency measure, especially if issues arise during natural birth. Dystocia, which is an umbrella term for excessively prolonged or difficult birth, is the most common condition managed by C-section. Dystocia also known as difficult parturition, is a condition in which the dam is unable to deliver the fetus without manual assistance and /or medicinal or surgical interventions (Sahoo et al., 2018). Only a couple of studies on the incidence and treatments of dystocia in cats (*Felis catus*) have been reported. This condition involves 3.3%-5.8% of queen parturitions (GunnMoore & Thrusfield, 1995; Humphreys, 1974; Pretzer, 2008) and is a significant cause of stillbirth (GunnMoore & Thrusfield, 1995). This is less common in cats and dogs. But it is slightly more prevalent in Persian cats, Siamese cat, Devon rex cat and less prevalent in Norwegian forests cats than in other breeds (Ekstrand & Lindeforsberg, 1994). Dystocia in the cat may be caused by fetal or maternal factors or in some cases a combination of both (Purohit and Gaur, 2004; Stedile et al., 2011). fetal causes of dystocia include mainly malposition and monsters (Majeed and Taha 1989a; Noakes et al., 2009). Maternal causes of dystocia include incomplete cervical dilatation (ring womb), narrow pelvis and uterine inertia (Majeed and Taha 1989b; Thomas, 1992; Noakes et al., 2009). The most prevalent cause of dystocia is uterine inertia, which refers to weak or absent contractions during parturition (Raut et al., 2009). The condition can be defined as either primary or secondary inertia (Gendler et al., 2007). Primary uterine inertia occurs when the uterine muscle fails to contract properly for a variety of hormonal or physical factors. Primary uterine inertia is further classified into two types: complete and partial primary uterine inertia. Complete primary uterine inertia occurs when the second stage of labor fails to begin, resulting in no fetal expulsion. Partial primary uterine inertia occurs when a litter is delivered normally but the uterus becomes fatigued until all of the fetuses are delivered (Jackson, 2004; Jones & Joshua, 1982; Pretzer, 2008). Primary uterine inertia is more common in multiparous species (dogs and cats) than in uniparous species (Kutzler, 2009), and it is also more common in primiparous animals than in pluriparous(Kumar et al., 2018).Secondary

uterine inertia, on the other hand, is caused by another source of dystocia such as fetopelvic disproportion, in which the uterine contraction ceases due to exhaustion after a period of non-productive labor(Jackson, 2004).

In this case report, the surgical treatment and management of dystocia due to uterine inertia by C-section in a Persian cat is presented. The purpose of this study is to examine the surgical treatment technique and management of cesarean section in Bangladeshi domestic cats, as well as the effects of surgery.

Chapter 2: Case Presentation

2.1 Case history, general and clinical examination

A one year old Persian cat (Luchi) weighing 3 kg were brought to teaching and training pet hospital and research center(TTPHRC) ,Dhaka on October 03, 2023 with a history of difficult to parturition and unknown number of fetus and having one delivered fetus 24 hours ago(figure 12). The owner assured that natural mating was done about 66 days ago approximately. At first general physical examination was thoroughly taken. On clinical examination the queen revealed that, rise of temperature and loss of appetite and very lethargic. In addition, the queen were also affected with ear mite. The queen were sent for the USG and X-ray for more confirmation and to know the number of fetus. Blood sample was also collected to analyze the routine parameters of blood.

2.2 Case diagnosis

On abdominal ballottement test, the cat response very effectively and revealed that existence of one or two fetus in the uterine horn. While performing USG of queen there was no fetal movement of the kitten and no heartbeat were detected during USG and auscultation. After taking x-ray (figure 1), there were shown three kitten in uterine horn. The case was diagnosed as dystocia due to uterine inertia.

2.3 Surgical technique and management

2.3.1 Patient preparation and premedication

The surgical site (1-2 cm caudal to umbilicus) shaved aseptically and scrubbing was done by 10% povidone-iodine and 70% alcohol for 3 times. Through cephalic vein, 20 gauge needle and cannula was set for the continuous flow of 0.9% normal saline to check dehydration and maintain fluid volume of the cat while performing surgery.

2.3.2 Animal restraining followed by anesthesia

To begin with, the queen cat were handled gently by towel and restrained well by the assistance with the owner. Then for the induction of sedation and muscle relaxation, xylazine hydrochloride (inj: xylazine®, Modern agencies Ltd.) Which is a potential alpha-2 receptor antagonist

administered @ 1 mg/kg bodyweight intramuscularly (I/M) to the Persian cat. After 8-10 minutes, completely sedation was done. Then the general anesthetic (GA) ketamine hydrochloride (inj: ketalar®, popular pharmaceuticals ltd.) @ 20mg/kg bodyweight administer intravenously (I/V) to induce general anesthesia.

2.3.3 Surgical procedure

The patient was positioned dorsal recumbancy and the incision site (figure 2) were aseptically made for the surgery by using 70% alcohol and povidone iodine (Povisep®, Jayson Pharmaceuticals Ltd) solution. Then the site were shaved aseptically and put a window drape and clamped with towel clamp. An incision about 4-5 cm long was made on the ventral midline of the cat below the umbilicus. Then subsequently the subcutaneous fat, abdominal muscle layer and peritoneum were incised. The gravid uterus with fetus were exposed (figure 3) and the peritoneal cavity and the surrounding viscera are packed off with gauge sponges. A longitudinal incision was made through the horn of the right uterus avoiding blood vessels (figure 4). The incision was extend to permit removal of the fetus. Two fetuses were removed along the fetal membranes from the right uterine horn (figure 5). With plain artery forceps, the right ovary was immediately gripped and the distal blood vessels were ligated with suture material chromic catgut 2-0. From the left uterine horn, one fetuses were taken out and the umbilical vessels was ligated and the newborn kitten was handed over to assistant surgeon for resuscitation and drying up. The left ovary had the same operation. Total three kitten were taken out from two uterine horn (figure 6) but unfortunately none of them were alive due to uterine inertia. Then the both uterus was closed by Czerny-lambert suture pattern (figure 7) with chromic catgut 2-0. The peritoneum and muscle layer were closed with simple continuous suture pattern using chromic catgut 1-0 (figure 8). Surgical mop was used to wipe off remaining blood. For the apposition of the skin and subcutaneous fat of abdomen, subcuticular suture was made by chromic catgut 1-0. Ointment povidone-iodine (Betadine® 5%) were applied to the surgical site (figure 9) after the surgery to avoid bacterial contamination of the skin. The persian cat was recovered from anesthesia partially after 30 minutes of surgery (figure 10). Finally, bandage were applied (figure 11) to avoid environmental contamination to the operated site and suggested for following up after 10 days.

2.3.4 Post-operative care of queen cat

As post-operative care the Persian cat was given 70 ml DNS 5% intravenously immediately after surgery. She was also treated with a dexamethasone sodium phosphate (inj: Roxadex, nuvista pharma Ltd.) @ 0.5mg/kg bodyweight intramuscularly Sid for 7 days. And also prescribed oxytocin (inj: Linda-s DS – 10 I/U, nuvista pharma Ltd.) @ 0.7 ml intravenously. In addition, antihistaminic (inj: aminovit plus vet, ACI pharmaceuticals Ltd.) @ 0.7 ml subcutaneously (S/C) were administered. External skin sutures were removed after 10 days of surgery.

2.3.5 Study Photo Gallery:



Figure -1: X-ray showing the number of fetus of queen cat before surgery

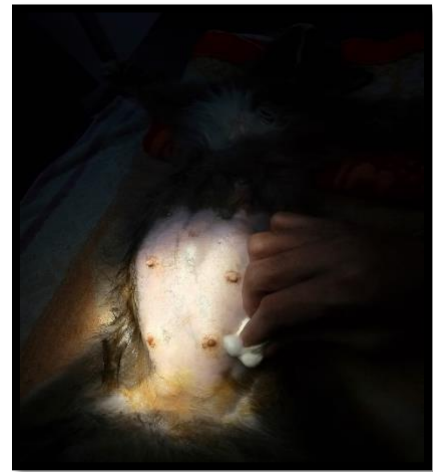


Figure – 2: Incision site prior to surgery (1-2 cm below umbilicus)



Figure – 3: Exposing the gravid uterus with fetus

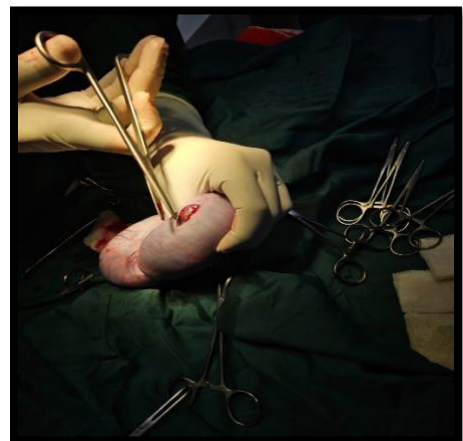


Figure -4: Incision on the wall of uterus avoiding blood vessels



Figure - 5: Removing placenta from dead fetus



Figure -6: Three dead kittens



Figure – 7: Closing of uterus by Czerny Lambert suture



Figure -8: Suturing muscle layer by simple continuous pattern



Figure – 9: Applying Betadine ® 5% ointment in the incision area

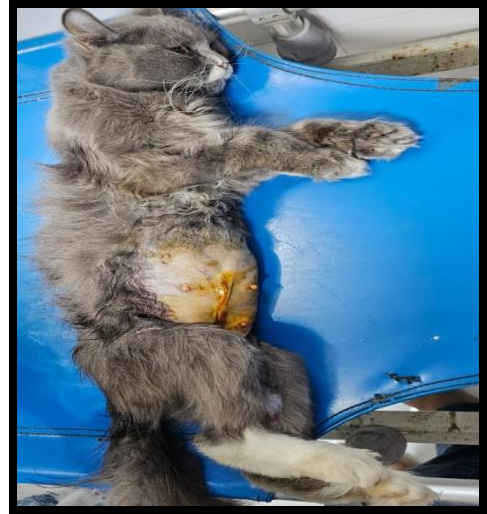


Figure -10: Recovered from anesthesia after surgery



Figure-11: Post-operative care of queen by applying bandage



Figure – 12: Delivered fetus (24 hours ago)

Chapter 3: Results and discussions

This report describes a successful surgery of a caesarean case in a Persian cat carried out at TTPHRC, Dhaka, Bangladesh which was unable to deliver its remaining fetuses due to primary uterine inertia. As a result dystocia occurred on that circumstances. Three dead kittens with placenta (figure 6) was removed and one live fetus (figure 12) was delivered 24 hours ago. After 10 days of successful surgery, the cat returned to all normal activities like eating, playing, defecation etc. It should be mentioned that physiological parturition lengths of up to 48 hours have been documented in cats (Jutkowitz, 2005; Sparkes et al., 2006). In this case, the queen was unable to deliver the other three fetuses after the first kitten was delivered more than 24 hours earlier. When it was admitted to TTPHRC, the cat had no sign of straining and contractions, did not respond to medical treatment, and became exhausted. Furthermore, no fetal movement was discovered during the examination. This condition could be the result of a fatigued uterus, which was unable to induce contractions for the delivery of the remaining fetuses (Barolia et al., 2010). All of these factors led us to perform an immediate C-section for the delivery of the remaining fetuses and to save the life of the queen. Fortunately, dystocia is uncommon in the queen cat (Jackson, 2004). When dystocia arises, however, there are two treatment options: medical and surgical care (Pretzer, 2008; Traas, 2008). In cats, the medicine of choice for treating uterine inertia is oxytocin alone or in combination with calcium borogluconate and glucose solution (Jackson, 2004). But in this case the cat wasn't treated with any hormonal drugs like oxytocin and after surgery an oxytocin injection (Linda-s DS – 10 I/U, nuvista pharma Ltd) were given for the post-operative care of the queen.

Conclusion

It can be concluded that, a caesarean section was successfully done in a Persian cat for the occurrence of dystocia due to primary uterine inertia in TTPHRC, Dhaka, Bangladesh. Three dead kittens were removed during surgery under general anesthesia, with all pre-operative treatment performed aseptically and post-operative care performed spontaneously.

References

- Sahoo, A. K., Nath, I., Nahak, A., Behera, S. S., Parija, D., & Nayak, S. P. (2018). Surgical management of dystocia due to secondary uterine inertia in dog- case report. *EC Veterinary Science*, 3(1), 260–265.
- Gunn-Moore, D. A., & Thrusfield, M. V. (1995). Feline dystocia: Prevalence and association with cranial conformation and breed. *Veterinary Record*, 136, 350–353. 10.1136/vr.136.14.350
- Ekstrand, C., & Linde-Forsberg, C. (1994). Dystocia in the cat: A retrospective study of 155 cases. *Journal of Small Animal Practices*, 35(9), 459–464. 10.1111/j.1748-5827.1994.tb03951
- Purohit GN and Gaur M (2004). Dystocia and its management in the bitch and queen. *J. Canine Dev. And Res.*, 4:90 -100
- Stedile, R., Oliveira, S. T., Muccillo, M. D. S., Contesini, E. A., & Beck, C. A. D. C. (2011). Dystocia in a cat due to an ectopic artery. *Veterinary Record*, 169(21). 10.1136/vr.d5516
- Majeed AF and MB Taha, 1989a. Dystocia in local goats in Iraq, *small ruminants Res.*, 2: 375 – 381
- Majeed AF and Taha, 1989b. Preliminary study on treatment of ringwomb in Iraqi goats, *Anim. Reprod.Sci.* 18: 199- 203
- Noakes DE, TJ Parkinson and GCW England, 2009. *Arthurs Veterinary Reproduction and Obstetrics*, 9th edition, pp. 578 – 585
- Raut, B. M., Dhakate, M. S., Upadhye, S. V., Khan, L. A., Khante, G. S., Tiple, A. V., & Donekar, M. N. (2009). Uterine inertia in bitch. *Veterinary World*, 2(2), 71.
- Gendler, A., Brouman, J. D., & Graf, K. E. (2007). Canine dystocia: Medical and surgical management. *Compendium on Continuing Education for the Practising veterinarian-North American Edition*, 29(9), 551.
- Jackson, P. G. G. (2004). *Handbook of veterinary obstetrics* (2nd ed., pp. 141–166). Elsevier Limited
- Jones, D. E., & Joshua, J. O. (1982). *Reproductive clinical problems in the dog*. Wright PSG Co.
- Kutzler, M. (2009). Dystocia and obstetric crises. In Silverstein D. C. & Hopper K. (Eds.), *Small animal critical care medicine* (pp. 611–615). Philadelphia, PA: WB Saunders.
- Kumar, P., Krishnaswamy, A., Honnappa, T., Murthy, V., Bhat, M., & Ranganath, L. (2018). Retrospective studies on primary uterine inertia in female dogs. *International Journal of Livestock Research*, 8(2), 153–161. 10.5455/ijlr.20170925065603
- Jutkowitz, L. A. (2005). Reproductive emergencies. *Veterinary Clinics: Small Animal Practice*, 35(2), 397–420. 10.1016/j.cvsm.2004.10.006

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Biography

This is Md. Jobair Hakim, the 4th child of Hazi Abdul Hakim and Nasima Begum, doing his graduation on Doctors of Veterinary Medicine (DVM) at Chattogram Veterinary and Animal Sciences University under the Faculty of Veterinary Medicine. He passed the Secondary School Certificate Examination (SSC) in 2014 from Shah Wali Ullah Institute, Chattogram, and got GPA 5.00 and then Higher Secondary Certificate Examination (HSC) in 2014 from Chattogram Biggan College, and got GPA 4.75 out of 5.00. Currently, he is doing his year-long internship.