



Feline Unilateral Uterine Prolapse: A Description of Two Cases

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Abstract

Two 1-year old primiparous cats were referred to the Small Animal Clinic of Department of Obstetrics and Gynaecology, Faculty of Veterinary Medicine, Istanbul University two weeks apart with a protrusion of a mass through vagina. Depending on clinical and ultrasonographic findings, unilateral uterine prolapse was diagnosed in both of the cats. Uterine prolapse was occurred just after the last delivery in Case 1, and was occurred 3 days after parturition in Case 2. Ovariohysterectomy was performed following manual reduction and intra-abdominal retraction of the prolapsed tissue in both cats. According to the author's knowledge, this is the first report of uterine prolapse in a cat 3 days after parturition.

Introduction

Uterine prolapse is a rare obstetrical emergency that occurs in feline species (Biddle and Macintire, 2000; Deroy et al., 2015; Jutkowitz, 2005) which was reported in both primiparous and multiparous animals (Nöthling et al., 2002). It usually arises during or within 48 hours of normal parturition, prolonged parturition or abortion (Biddle and Macintire, 2000; Deroy et al., 2015; Feldman and Nelson, 1996; Jutkowitz, 2005; Nöthling et al., 2002; Özyurtlu and Kaya, 2005) when the cervix is dilated (Biddle and Macintire, 2000; Jutkowitz, 2005). However the cause of uterine prolapse is unknown, predisposing factors include severe tenesmus, over relaxation of the pelvic musculature, uterine atony, incomplete placental separation and flaccid mesovaria (Jutkowitz, 2005; Nöthling et al., 2002; Özyurtlu and Kaya, 2005). Additionally one empty uterine horn may prolapse while the other uterine horn contains fetuses (Feldman and Nelson, 1996)

Diagnosis can be made by inspection of the prolapsed tissue (Jutkowitz, 2005; Özyurtlu and Kaya, 2005). Varying degrees of edema, ischemia, ulceration and necrosis were observed depending on the duration and severity of the case (Biddle and Macintire, 2000; Deroy et al., 2015; Jutkowitz, 2005).

Various methods for treatment of this condition include manual reduction and replacement of the

uterus, laparotomy with both internal and external manipulation of the uterus, amputation of the everted tissue, and ovariohysterectomy (Feldman and Nelson, 1996; Jutkowitz, 2005; Özyurtlu and Kaya, 2005).

Case

This case report describes two cross-breed cats with unilateral uterine prolapse. The cats were referred to the Small Animal Clinic of Department of Obstetrics and Gynaecology, Faculty of Veterinary Medicine, Istanbul University two weeks apart with a protrusion of a mass through vagina.

Case 1

A 1 year old primiparous cat had delivered 4 alive kittens with 15 minutes apart without assistance. A protrusion of a mass through vagina had been recognized, but supposed to be a new delivering kitten by clients. However it had been realized to be an unusual condition after a period of 6 hours, the cat was admitted to a veterinary clinic. The prolapsed tissue could not be replaced its normal position and the cat was referred to the Small Animal Clinic of the Department of Obstetrics and Gynaecology, Faculty of Veterinary Medicine, Istanbul University. The cat was bright, alert and responsive. Vital parameters were in normal limits. Mucous membranes were pale pink and dehydration score was 5-8%. On examination, the

unilaterally prolapsed uterus was detected as grossly enlarged, edematous, and was containing ulcerated areas at the tip of the prolapsed tissue (Figure 1). On ultrasound examination, only one uterine horn could be identified, any fetus could not be detected and urinary bladder was full-filled with urine.



Figure 1. Uterine prolapse in Case 1.

Case 2

A 1 year old primiparous cat had delivered 1 alive and 1 stillborn kitten without assistance. Next day, another stillborn kitten had been delivered within 3 hours with dystocia. The cat was admitted to a veterinary clinic 3 days later with a complain of a mass protruding from vagina and lack of appetite. After unsuccessful attempts to treat the condition, the cat was referred to the Small Animal Clinic of the Department of Obstetrics and Gynaecology, Faculty of Veterinary Medicine, Istanbul University. The cat was alert and responsive but lethargic. The cat was pyrexial at 39.6 °C. Mucous membranes were pale and dehydration score was 8-10%. On examination, the unilaterally uterine prolapse and first degree perineal laceration were diagnosed. The prolapsed tissue was edematous and ulcerated on some areas. The right uterine horn could be imagined on ultrasound examination. Additionally, urinary bladder was found to be enlarged and any fetus could not be detected.

The owners of the cats have read, understood and signed the informed consent form before treatment of the diagnosed conditions.

The prolapsed tissues of both cases were cleaned with antiseptic solution (povidone iodine), lavaged with hyperosmotic dextrose solution (20% dextrose) and gently massaged to reduce edema. According to the clients' wishes, ovariohysterectomy was performed on both cats. The blood samples were collected from cats and analysed in Laboratory of Animal Hospital, Faculty of Veterinary Medicine, Istanbul University as a routine haematological and biochemical analysis (the analysers used are Mindray BC-2800 Vet, Mindray Co, Ltd., China and Tokyo Boeki Prestige 24i, Tokyo Boeki Medisys Inc., Japan, respectively) before surgery (Table 1).

Table 1. Haematological and Biochemical Blood Parameters.

Parameters	Case 1	Case 2
RBC (x 10 ⁶ µL)	8.6	8.1
HGB (g/dL)	12.3	11.8
HCT (%)	37	35
WBC (x 10 ³ µL)	22.0	54.0
PLT (x 10 ³ µL)	238	221
MCV	46	44
MCH (pg)	14	15
MCHC (%)	34	33
Glucose (mg/dL)	138	222
BUN (mg/dL)	40	60
Creatinine (mg/dL)	1.2	1.0
AST (IU/L)	33	36
ALT (IU/L)	21	8

The cats were premedicated with atrophine sulphate (0.05 mg/kg SC). The anaesthesia was induced with propofol (6 mg/kg IV). The cats were intubated and the anaesthesia was maintained with isoflurane + O₂. A ventral midline laparotomy was performed for ovariohysterectomy. However the catheterization of the bladder was unable to be performed, cystosynthesis was done to drain the urine initially in both cases. In Case 1, both uterine horns were asymmetrically eversed, the right uterine horn was invaginated into the left one, but only cervix and uterine body were prolapsed. In Case 2, left uterine horn was diagnosed as prolapsed from vagina. The prolapsed left horn was empty and the other (right) uterine horn was present in its normal position. In both cases, the prolapsed masses were reduced manually and retracted into the abdominal cavity at the same time (Figure 2). Subsequently, the ovariohysterectomy procedures were performed. Perineal laceration was also repaired in Case 2.

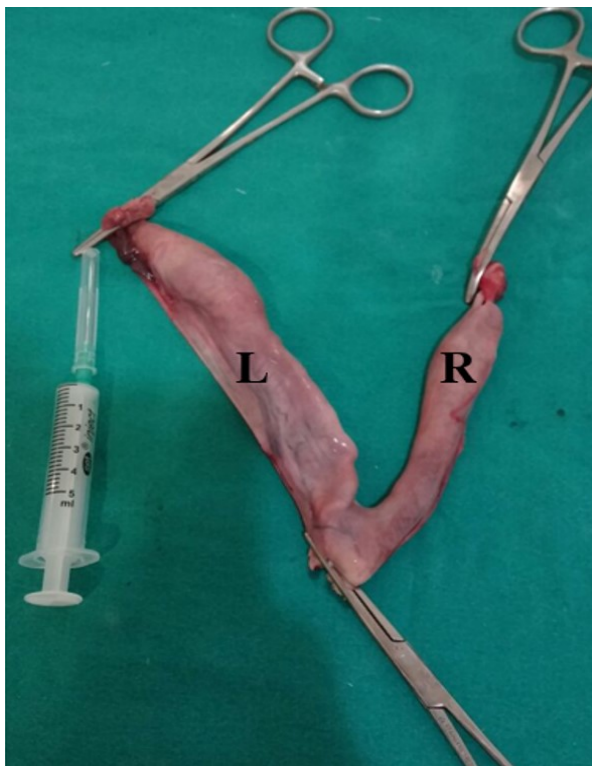


Figure 2. Uterine horns after operation in Case 2 (L: left uterine horn, R: right uterine horn).

Case 1 was received postoperative supportive therapy with i.m. antibiotics (Ceftriaxone), i.m. vitamin combination, i.v. physiological saline solution (0.09% NaCl), i.m. H2 receptor antagonist, and i.m. non-steroidal anti-inflammatory drug (Meloxicam).

Case 2 was received i.v. antibiotic (Metronidazole) and i.m. Vitamin B12 in addition to the recipe in Case 1. Both cats were discharged from the clinic in healthy conditions.

Discussion

Uterine prolapse is a rare postpartum complication reported in cats (Biddle and Macintire, 2000; Deroy et al., 2015; Jutkowitz, 2005; Nöthling et al., 2002; Özyurtlu and Kaya, 2005) which usually occurs during or within 48 hours of parturition (Biddle and Macintire, 2000; Deroy et al., 2015; Feldman and Nelson, 1996; Jutkowitz, 2005; Nöthling et al., 2002; Özyurtlu and Kaya, 2005). The onset of the condition in Case 1 is in consistent with the previous reports, nevertheless, uterine prolapse was occurred 3 days after parturition in Case 2. According to the author's knowledge, this is the first report of a delayed uterine prolapse in a cat after parturition.

Blood WBC concentrations were found higher than reference levels in both cats as a result of possible contamination of the prolapsed tissue. High glucose concentrations in Case 2 may originated by stress and dystocia as muscle activity may result in transient hyperglycemia in cats (Sodikoff, 2001). Urinary bladder of both cats were full-filled with urine, catheterization of the bladder was unable to be performed. However, high BUN concentrations may observed as a result of dehydration and difficulty in urination (Sodikoff, 2001) due to the prolapsed tissue in both cats. It was suggested that low ALT concentration in Case 2 may indicate poor nutrition which could be caused by deficiency in vitamins and minerals.

The cause of the uterine prolapse is unknown in cats (Nöthling et al., 2002; Özyurtlu and Kaya, 2005). It has been suggested that estrogen may be responsible for edema of perivaginal tissues and relaxation of pelvic ligaments as well as relaxation of vulvar and perivulvar musculature which may be combined with an inherited weakness of the perivaginal tissues (Gouletsou et al., 2009). Unusually mobile ovary and uterine horn due to poor suspension of ligaments (Nöthling et al., 2002) and the increased intra-abdominal pressure in addition to the excess relaxation of pelvic tissues may predispose genital tract to prolapse (Alan et al., 2007; Gouletsou et al., 2009). Despite the normal and unassisted labour in Case 1, unilateral uterine prolapse was occurred just after delivery of the last kitten. In this case, relaxation of the pelvic structures may have played role during this process. However, in Case 2, a prolonged parturition with dystocia was present. The extended labor may possibly exhausted the uterus and may delayed the uterine prolapse despite the predisposing factors. Finally it was suggested that, uterine contractions due to oxytocin release during nursing and involution process may play a role in uterine prolapse 3 days after parturition in Case 2. Additionally, a unique and unusual report of uterine prolapse in a non-pregnant cat with perimetritis and parametritis has been recently published (Valentine et al., 2016). It was contributed that the polypoid perimetrial lesions which were also extended along the uterine ligaments might induce ligament laxity and/or might act as an abdominal irritant leading to abdominal contractions or tenesmus in the mentioned case of uterine prolapse (Valentine et al., 2016).

Various methods for treatment have been described for uterine prolapse (Feldman and Nelson, 1996; Jutkowitz, 2005; Özyurtlu and Kaya, 2005). An ovariohysterectomy should be performed if the prolapsed tissue is damaged and tissue viability is

compromised (Biddle and Macintire, 2000; Feldman and Nelson, 1996; Jutkowitz, 2005). Surgical reduction of the tissue should be done if manual reduction of the prolapsed tissue is unsuccessful. Although the management of the patients were done immediately, the duration of the prolapsus was long, ulceration on some areas and severe edema were developed on the prolapsed tissues in current cases. Manual reduction of the prolapsed tissues were not possible and the clients preferred sterilization of the cats. Therefore, vaginal approaches like replacement of the tissue with/without episiotomy or amputation of the prolapsed tissue to repair the condition was not preferred and laparotomy was conducted. The operator applied traction from the abdomen while the assistant applied external pressure as previously described (Feldman and Nelson, 1996; Jutkowitz, 2005), and ovariohysterectomy was performed.

In conclusion, prolapse of the uterus is a rare obstetrical emergency in cats. It usually arises during or within 48 hours of normal parturition, prolonged parturition or abortion. If the prolapsed uteri could not be identified in a little while, serious lesions can develop on the prolapsed tissue which may lead to sterilization of the animal as in this case report. As this is the first description of uterine prolapse in a cat after 72 hours of parturition, it is found appropriate to discuss this case.

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