



## Clinical Report

# Unusual Case of Utero-Ovarian Prolapse Concurrent with Cystocele in a Queen

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### Abstract

**Case Description-** A year-old female domestic short hair cat weighing 2.5 kg with one week history of protruding mass from the vulva was admitted.

**Clinical Findings-** The prolapse was complete involving both horns protruding from the vulva and a soft bulging mass was palpable inside the prolapsed uterus.

**Treatment and Outcome-** The prolapsed organ was irrigated with warm saline solution and the debris was cleaned. A ventral midline celiotomy was performed for reduction of the mass and sterilization of the cat.

The urinary bladder was incarcerated in the right horn of the uterus. The left ovary was inside the mass beside the bladder. Ovarian pedicles were intact but broad ligament was torn. An ovariohysterectomy was performed.

**Clinical Relevance-** Complete uterine prolapse is an emergency case of surgery. If the prolapse includes abdominal contents, amputation of the mass may be avoided and reduction of the uterus and abdominal contents through celiotomy should be prioritized. It seems that this case was the first report of an ovarian prolapse coincident with retroversion of the uterus. The prognosis following ovariohysterectomy is excellent if shock and hemorrhage are treated appropriately.

**Key Words-** utero-ovarian prolapse, cystocele, queen.

**Received:** 19 January 2016; **Accepted:** 10 September 2017; **Online:** 25 October 2017

### Case Description

A year-old female domestic short hair cat weighing 2.5 kg was presented to the private small animal clinic with one week history of a protruding mass from the vulva. The queen had borne a litter of three alive and normal sized kittens in her first parturition, three weeks before the presentation.

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### Clinical Findings

On physical examination, the animal was in good condition. The pulse and respiratory rates were both within normal ranges. Rectal temperature measured at 37.5°C. She was eating and drinking normally despite the mass. The prolapse was complete involving both horns protruding from the vulva as well as a part of vagina and a soft bulging mass was palpable inside the prolapsed uterus (Fig1). The exposed uterus was pink colored and edematous, and some areas were covered with debris. Routine parameters of blood biochemical analysis and packed cell volume were measured which all were in normal range.



**Figure 1.** Prolapse of uterus with both horns and a soft bulging mass (arrow).

Eating, urination and defecation were not interrupted according to owner's claim.

### Treatment and Outcome

The cat was stable for surgery and celiotomy was planned for reduction of the mass and sterilization of the cat. Following intramuscular administration of ketamine hydrochloride (10%, Alfasan, Woerden, The Netherlands) (10 mg/kg) and acepromazine (1%, Alfasan, Woerden, The Netherlands) (0.1 mg/kg), ringer's solution was administered through a 24 G cephalic catheter at a rate of 10 ml/kg/h. 25 mg/kg cefazolin (Jaber Ebne Hayyan Pharmaceutical Company, Saveh, Iran) was administered intravenously at the beginning of surgery as prophylactic antibiotic. The prolapsed organ was irrigated with warm saline solution and the debris was cleaned. The cat was positioned in dorsal recumbency and the aseptic preparation of the abdomen was performed.

A ventral midline celiotomy incision starting two centimeters caudal to umbilicus was done. During the operation, the urinary bladder was found to be incarcerated in the right horn of the uterus. The ovaries were not in their normal position through the traction and the left ovary was located inside the mass beside urinary bladder. Ovarian pedicles were intact but broad ligament was torn. Both suspensory ligaments with ovarian arteries and veins were elongated. After exploration of the abdominal cavity, the prolapsed mass was pushed manually by an assistant and reproductive organs were retracted into the abdominal cavity by the surgeon simultaneously (Fig 2). Urinary bladder was freed and placed in normal position without additional manipulation.

Prolapsed and incarcerated viscera had normal color and texture after reduction.

An ovariohysterectomy was performed ligating ovarian arteries and veins. After transection of ovarian pedicles, figure-eight suture was placed through the uterine body near the cervix encircling uterine arteries and veins and the uterus were excised on the uterine body (Fig 3). The abdominal cavity was inspected for evidence of hemorrhage and lavaged with warm saline. The abdomen was closed in routine manner.

Recovery was without any complication. Postoperative treatment was antibiotic (cefazolin, 25 mg/kg q12h) and NSAID (Ketoprofen, 2 mg/kg q24h, Razak, Tehran, Iran). One week after the surgery and two months later, the case was followed and no complication was detected in routine examinations.



**Figure 2.** Both horns of the uterus and urinary bladder after reduction. Note the ruptured broad ligament (arrow).



**Figure 3.** Uterus after Ovariohysterectomy. Arrows show ovaries.

## Clinical Relevance

On the day after surgery, the cat was alert and discharged from the clinic. Skin sutures were removed two weeks after the operation. Follow up of the case, two months after the surgery, revealed healthy queen without any problem. Uterine prolapse in the cat is relatively uncommon.<sup>1,2</sup> It accounts for 0.6% of the maternal causes of dystocia.<sup>3</sup> The etiology of feline uterine prolapse is unknown. It usually occurs during or shortly after parturition.<sup>4</sup> Decreased myometrial tone may allow the uterus to fold in and permit part of the wall to move towards the pelvic inlet.<sup>5</sup> Prolonged queening, incomplete placental separation, pain or discomfort after parturition may cause dystocia. Dystocia and increased straining may lead to uterine prolapse.<sup>6,7</sup> As mentioned before, prolapse of uterus may occur immediately or up to 48 hours after parturition. In the present queen, prolapse was observed two weeks after parturition. Direct causative factor was not found for uterine prolapse in this case, but it might be related to dilated cervix and lax uterine ligaments.

Clinical signs include vaginal discharge, straining, restlessness, abnormal posture, pain, protrusion of a mass from the vulva, licking and dysuria.<sup>1</sup> It may progress to signs associated with shock, where the ovarian or uterine vessels are ruptured.<sup>2</sup> The uterus may also be edematous, as in the present case, due to venous congestion and stasis. In cats, considerable damage and contamination can occur rapidly as a result of exposure and licking of the prolapsed organ and may lead to toxemia. In addition, urinary tract infection and even acute urinary retention may occur.<sup>8</sup> In the present case, urination and defecation were not compromised. It seems that kinking or compression of urethra may lead to mechanical obstruction, hence urinary retention ensues.<sup>9</sup> Prolapse of the uterus is diagnosed easily by observation. Palpation of the mass is necessary to rule out the possible presence of any abdominal contents such as the urinary bladder or abdominal viscera inside it.<sup>8</sup> In the present case, urinary bladder and an ovary were palpable within the mass. In humans, ovarian prolapse with retroversion of the uterus has been defined.<sup>10</sup> Review of the literature did not reveal any report for ovarian prolapse in the cat, hence, it seems that this case was the first report of an ovarian prolapse concurrent with retroversion of the uterus. Ultrasonography of the abdomen and the uterine prolapse may reveal the position of the urinary bladder, ovaries and the intestine as well as diagnosing probable retained kitten in the abdomen.

Uterine prolapse should also be differentiated from vaginal prolapse/hyperplasia, vaginal tumor, and uterine torsion.<sup>11</sup>

Uterine prolapse is an emergency case. Medical treatment is rarely successful. Before surgery, activity should be restricted to decrease the risk of uterine artery rupture. Prolapsed mass should be irrigated with warm saline or preferably with a hypertonic solution to prevent infection by debris and reduce the edema. Gentle massaging to the mass with osmotic agents like sugar can decrease swelling. Shock should be treated with fluids (plus or minus corticosteroids), and acid-base and electrolyte imbalances corrected.

Lubrication of the mass with a water-soluble gel and pushing back the uterus to its place as well as flushing sterile fluid under pressure into the uterine horn can help replace the mass. Episiotomy may be necessary to assist with manual reduction.<sup>7</sup> Caudal epidural anesthesia can prevent straining and facilitate replacement of the uterus.<sup>4,12</sup> After replacement, administration of oxytocin (5 to 10 U) can prevent recurrence, promoting uterine involution and closure of the cervix.<sup>11</sup> Ovariohysterectomy should be performed if tissue is devitalized or irreducible, or if broad ligament vessels have ruptured. Celiotomy may be necessary to facilitate manual reduction by cranial traction of the broad ligament or uterus. If reduction is impossible, the uterus have to be amputated and the stump should be reduced after ligation of uterine arteries; then ovariohysterectomy should be performed.<sup>13</sup>

Where breeding of the queen is important, colposuspension may prevent recurrence. This method involves placement of sutures from the cranial vagina to the prepubic tendon on either side of the proximal urethra and fixing proximal urethra within the abdomen.<sup>14</sup>

Postoperative care involves monitoring of the queen for hemorrhage, shock, dehydration, infection, urethral obstruction and recurrence. If dysuria or anuria is anticipated, a urinary catheter should be placed.<sup>11</sup> Whenever viability of incarcerated organs has not been judged correctly, necrosis of involved tissues can be fatal. Analgesics should be given if required. Antibiotics could be continued postoperatively if the uterus is traumatized.<sup>11</sup>

## Conclusion

Complete uterine prolapse will not regress spontaneously. It is an emergency case of surgery. Palpation and ultrasonographical examination are important to confirm the presence/absence of abdominal contents in the uterus. If the prolapse includes abdominal contents, amputation of the mass may be avoided and reduction of the uterus and abdominal contents

through celiotomy should be prioritized. The prognosis following ovariohysterectomy is excellent if shock and hemorrhage are treated appropriately.

### Acknowledgments

We appreciate the staff of the clinic of Faculty of Veterinary Medicine of Tabriz University for their help.

### Conflicts of interest

None.

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## پرولاپس رحم و تخمدان به همراه مثانه در یک قلاده گربه

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**توصیف بیمار** - یک گربه مو کوتاه اهلی ماده به سن یک سال و وزن ۲/۵ کیلوگرم با سابقه هفت روزه یک توده بیرون زده از فرج مورد پذیرش قرار گرفت.

**علایم بالینی** - پرولاپس شامل هر دو شاخ رحم و یک توده نرم برجسته در داخل رحم بود.

**درمان و نتیجه** - پس از شستشوی پرولاپس با سرم نرمالین سالین ولرم و تمیز نمودن آلودگی های سطح مخاط، سلیوتومی از خط وسط به منظور جا انداختن اندام پرولاپس یافته صورت گرفت. مثانه گیر کرده در داخل اندام پرولاپس یافته آزاد شد. تخمدان چپ در داخل توده پرولاپس یافته در کنار مثانه قرار داشت. پایه های تخمدان ها سالم بود ولی لیگامان پهن پاره شده بود. اواریهیسترکتومی به منظور عقیم سازی حیوان صورت گرفت.

**کاربرد بالینی** - پرولاپس کامل رحم یک مورد اورژانسی جراحی است. در صورتیکه سایر احشای محوطه بطنی داخل پرولاپس گیر کرده باشند، باید از قطع نمودن توده از بیرون بدن اجتناب نموده و جا انداختن رحم و سایر احشای گیر افتاده از طریق برش محوطه بطنی در اولویت قرار گیرد. به نظر می رسد که این مورد اولین گزارش یک پرولاپس رحم به همراه مثانه و تخمدان در گربه است. در صورتی که شوک و خونریزی به نحو مقتضی مدیریت شود، پیش آگهی درمان به روش برداشت رحم و تخمدان عالی می باشد.

**کلید واژگان** - پرولاپس رحم و تخمدان، مثانه، گربه.