

# VAGINAL RUPTURE DUE TO DYSTOCIA IN A CAT THAT RESULTED IN POSTRENAL AZOTEMIA: CASE REPORT

## Bir kedide güç doğuma bağlı vaginal ruptur sonucu postrenal azotemi olgusu

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### Summary

#### Case presentation

A 5-year-old black and white pregnant cat was admitted to our clinic with bloody discharge from the vagina with no evidence of labor. An exploratory laparotomy was performed and a vaginal rupture was revealed. One of the kittens was totally in the abdominal cavity while the other was partially so. In this case, several options for diagnosis and treatment are discussed with special emphasis on dystocia.

**Key words:** cat, dystocia, postrenal azotemia, vaginal rupture.

#### Özet

Kliniğimize getirilen 5 yaşındaki siyah beyaz gebe bir kedide, 3 gün önce kanlı vulval akıntı ve doğum belirtileri görüldüğü halde yavruların doğum kanalından çıkmadığı belirlendi.

Laparotomi sırasında vestibulovaginal ruptur şekillendiği ve yavrulardan birinin tamamen, diğerinin ise kısmen karın boşluğunda olduğu belirlendi. Bu vakada diagnostik ve cerrahi yaklaşımlar ile güç doğumun önemi vurgulanmaktadır.

**Anahtar kelimeler:** güç doğum, kedi, postrenal azotemi, vaginal ruptur

### Background

Dystocia is described as difficult birth or inability to expel the fetus from uterus. Incidence of dystocia in queen is less common compared to bitch. Dystocia should be suspected if there is a visible kitten and bloody discharge (2). Causes of feline dystocia include inadequate size of maternal birth canal, fetal malpresentation and malformations as well as maternal uterine inertia, uterine torsion, uterine prolapsus, uterine rupture and prolonged pregnancy (1, 2, 7, 8, 9, 16).

Dystocia is cured by manual intervention as well as medical and surgical methods. Generally, cesarean section is the most commonly used treatment. Cesarean section is performed as laparohysterotomy or laparohysterectomy depending on living or dead fetuses or infection or necrosis in uterus (3, 6, 8, 11).

### Case Report

A five-year-old black and white pregnant cat was admitted to the University of Ondokuz Mayıs, School of Veterinary Medicine, Department of Obstetrics and Gynaecology, with the history of no delivery but the bloody vulval discharge lasting for three days. On physical examination, rectal temperature was 38.8°C, respiratory rate was 64/min and pulse rate was 140/min. On digital examination of the vagina, there was no fetus in the birth canal with some traces of dried discharge around vulva. The queen was anorexic, lethargic and dehydrated and had severe vomiting for 36 hours.

Ultrasonographic examination performed by Real-time B-mode veterinary ultrasonography equipment and sector probe of 7.5 MHz revealed no heart beat of fetuses. The queen was diagnosed as dystocia and a cesarean section was planned.

Blood samples were collected for a complete blood count (CBC). Haemogram results are shown in Table-1. CBC revealed a hypochromic, normocytic anemia with a haematocrit

level of 18.21% (range=37-50%). Also, postrenal azotemia with BUN of 264 mg/dL (range=10-30mg/dL) and creatinine of 0.6 mg/dl (range=0.8-2.1 mg/dl) was diagnosed.

Table 1: Haemogram results		
RBC	3.90 10 <sup>6</sup> /μl	(range= 5.00-10.00)
HGB	5.3 g/dl	(range= 8.00-15.00)
HCT	18.21 %	(range= 24.00-45.00)
MCHC	28.9 g/dl	(range= 30.0-36.0)
MCV	47 fl	(range= 39-55)
MCH	13.5 pg	(range= 12.5-17.5)
PLT	280 10 <sup>3</sup> /μl	(range= 300-800)
WBC	9.20 10 <sup>3</sup> /μl	(range= 5.50-19.50)
LYM	0.52 10 <sup>3</sup> /μl	(range= 1.50-7.00)
MONO	0.06 10 <sup>3</sup> /μl	(range=<1.50)

Lactated Ringer’s solution was administered and cephalosporin was started preoperatively via iv route. The queen was premedicated with 0.2-0.5 mg/kg, iv diazepam and was induced with 3.0 mg/kg, i.v. propofol. General anesthesia was maintained with isoflurane. Infusion of lactated ringer’s solution at a rate of 10 ml/kg was administered throughout surgery. A median laparotomy was performed, ovaries were ligated and removed and then the vaginal rupture was seen. The length of the rupture was 5 cm on the

dorsolateral wall of vagina propria extending to vestibulumvagina (Figure 1). One of the litters was totally in the abdominal cavity while the other was partially so (Figure 2). Both litters had putrifaction necrosis (Figure 3). Necrotic tissue of vaginal rupture was extirpated and the rupture was repaired with USP 2/0 chrome cat-gut in a continuous inverting pattern (Figure 4-5). Then ovariohysterectomy was performed. After abdominal lavage was performed using isotonic solutions, the incision was closed anatomically.



Figure 1: Vaginal rupture



Figure 2: The fetus partially seen from vaginal rupture



Figure 3: The putrified fetus



Figure 4: Extirpation of necrotic tissue on vaginal rupture



Figure 5: The suture on vaginal rupture



Figure 6: Urethra lateral to vaginal rupture

## Discussion

Dystocia in queen is uncommon compared to bitch. In a study conducted in 735 queens, the incidence of dystocia was found to be 5.8 % (5). In another study, the incidence of cesarean section due to dystocia was reported to be 15.2 % in short hair cat breeds. There are also reports suggesting a 24.4 % incidence for the presence of a defect in one or more kittens after cesarean section (14).

As reported by Johnson (8), the signs of dystocia such as history of previous dystocia, known predisposition for dystocia and anorexia for more than 24 hours were all seen in our case. In the queen in this case en bloc ovariohysterectomy was performed as fetuses were determined to be dead on ultrasonographic examination (3, 6, 11).

Vaginal rupture due to dystocia suggests the possibility of narrow birth canal or fetal oversize. There are several studies supporting the fact that a narrow birth canal is one of the reasons of dystocia (1, 5).

Postrenal azotemia is generally thought to be the result of urethral obstruction or vaginal rupture that results in

accumulation of urine in the abdominal cavity (Figure 6). In our case, the urine in the abdominal cavity caused postrenal azotemia because of resorption of urea from the peritoneum (4, 10, 13, 15). This also explains the presence of gastrointestinal symptoms such as vomiting, anorexia, lethargy due to postrenal azotemia in this case (12). The queen of this case died at 3 hours of postoperation.

Prognosis of dystocia mainly depends on the etiologic factors, treatment modalities of choice and the time elapsed between the onset of dystocia and surgical intervention (9). In our case, the cat was admitted to our clinic three days after the first signs of dystocia and this lead to uremia due to vaginal rupture which resulted in mortality.

To the best of our knowledge, this is the first documented report of a case with postrenal azotemia due to vaginal rupture occurred due to dystocia. We suggest that early surgical intervention can be life saving for cases with dystocia thus preventing the late complications which could jeopardize both the queen and the kittens.

## References

- 1.Ekstrand C., Linde-Forsberg C., eds.: Dystocia in the cat: A retrospective study of 155 cases. *Journal of Small Animal Practice*, 1994, 35, 459-464.
- 2.Feldman E.C., Nelson R.W.: *Canine and Feline Endocrinology and Reproduction*. 2<sup>nd</sup> ed. Philadelphia: WB Saunders Co.: 1996.
- 3.Gilson, S. D.: Cesarean section. In: Slatter, D., ed. *Textbook of Small Animal Surgery* Slatter. Philadelphia: Saunders, 2002: 1517.
- 4.Grauer G.F.: Urinary disorders. In: Nelson R.W., Couto C.G., eds. *Small Animal Internal Medicine*. London: Mosby Year Book, 1992: 463-465.
- 5.Gunn-Moore D.A., Thrusfield M.V.: Feline dystocia: prevalence, and association with cranial conformation and breed. *Vet Rec*. 1995,136(14), 350-3.
- 6.Hedlund C.S.: Surgery of the Reproductive and Genital Systems. In: Fossum T.W.,ed. *Small Animal Surgery*. St. Louis: Mosby Year Book: 1997, 528-530.
- 7.Jackson P., ed.: *Handbook of Veterinary Obstetrics*. London: WB Saunders Co: 2004.
- 8.Johnson C.A.: Reproductive Disorders. In: Nelson R.W., Couto C.G., eds. *Small Animal Internal Medicine*. London: Mosby Year Book: 1992, 673-675.
- 9.Johnston S.D., Kustritz M.V.R., Olson P.N.S., eds.: *Canine and Feline Theriogenology*, 1<sup>st</sup> ed. Philadelphia: WB Saunders Co: 2001.
- 10.Lees G.E., Willard M.D., Green R.A.: Urinary disorders. In: Willard M.D., Tvedten H., Turnhald G.H, eds. *Small Animal Clinical Diagnosis by Laboratory Methods*. Philadelphia: WB Saunders Co: 1994, 115-146.
- 11.Pearson H.: Genital surgery in the bitch and queen. In: Arthur G.H, Noakes D.E., Pearson H, Parkinson T.J,eds. *Veterinary Reproduction and Obstetrics*. London: WB Saunders Co; 2003, 332
- 12.Schulman R.L., Krawiec D.R.: Gastrointestinal Complications of Uremia. In: Barsanti J.A., ed. *Kirk's Current Veterinary Therapy XIII Small Animal Practice*. Columbia: Saunders; 1999, 864-865.
- 13.Shaw D.S., Ihle S.L.eds.: *Small Animal Internal Medicine*. A Wolters Kluwer Co; 1997.

14. Sparkes A.H, Rogers K, Henley W.E, Gunn-Moore D.A, May J.M, Gruffydd-Jones T.J, Bessant C.: A questionnaire-based study of gestation, parturition and neonatal mortality in pedigree breeding cats in the UK. *Journal of Feline Medicine and Surgery*. 2006, 8,145-157.
15. Tilley L.P, Smith F.W.K.: *Diagnostics-Laboratory Tests*. In: Cann C.A., eds. *The 5 Minute Veterinary Consult*. Waverly Co; 1997, 216.
16. Wykes P.M, Olson P.N.: *Normal and Abnormal Parturition*. In: Slatter D.,ed. *Textbook of small animal surgery-Slatter*. Philadelphia: Saunders; 2002, pp. 1510-1517.

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