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Olgu Sunumu / Case Report

Aksaray malaklısı gebe bir köpekte leiomyom ile komplike vajinal prolapsus ve torsiyonu uteri olgusu

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Bu olgu raporunda, 7,5 aylık, 38 kg ağırlığındaki Aksaray Malaklısı ırkı gebe bir köpekte torsiyonu uteri ile birlikte seyreden prolapsus vajina olgusu anlatılmaktadır. Dişi köpek, kliniğimize bir aydır vajinadan prolabe olan kitle şikayetiyle getirildi. Köpeğin ilk proöstrusunun altı aylıkken şekillendiği, bu süreçte herhangi bir vajinal patolojinin gözlemlenmediği ve hasta sahibi tarafından köpeğin çiftleştirilmediği bilgisi alındı. Vajinal muayenede, tam prolabe olan vajina dokusunda nekroze alanlar tespit edildi. Hasta sondalanarak, idrar yollarının normal pozisyonda olduğu belirlendi. Tam kan sayımı ve bazı biyokimyasal parametreler değerlendirildi. Ultrasonografik muayenede köpeğin, yaklaşık 40 günlük gebe olduğu ve yavrularda kalp atımı olmadığı belirlendi. Tedavi amacıyla, ovariohisterektomi ve prolabe olmuş vajinaya cerrahi müdahale uygulandı. Ovariohisterektomi sırasında sağ kornu uterininin arka tarafının hem kendi eksenini hem de sol kornu uterininin çevresinde 180° torsiyona uğradığı görüldü. Ovariohisterektomi sonrasında tam prolabe olan vajina dokusu ekstirpe edildi ve histopatolojik inceleme için patolojiye sevk edildi. Histopatoloji neticesinde, vajina dokusunda şiddetli yangı ve leiomyom tespit edildi. Gebelik süresince artan progesteron nedeniyle vaginal leiomyomda büyüme şekillendiği ve vajinadan prolabe olan dokuların büyüklüğünün artarak belirgin bir hal aldığı düşünülmektedir. Bu büyüme sebebiyle gerilen ve gebelik nedeniyle hacimsel artışa sahip uterusu torsio şekillendiği tahmin edilmektedir. Sunulan olguda, köpeklerde prolapsus vajina olgularının ilk siklusa görülebileceği, iyi huylu tümörlerle birlikte seyredebileceği ve gebelik şekillenen köpeklerde torsiyonu uteriye sebep olabileceği kanısına varıldı. Bu tarz komplike vakaların detaylı klinik ve histopatolojik muayene ile değerlendirilmesi gerektiği sonucuna varıldı.

A case of vaginal prolapse and torsion uteri complicated by leiomyoma in a pregnant Aksaray malaklı dog

ABSTRACT

In this case report, a case of prolapsed vagina with torsion uteri in a pregnant Aksaray malaklısı breed dog, aged 7.5 months and weighing 38 kg, is described. A female dog was brought to our clinic with a complaint of a mass protruding from the vagina for one month. In the anamnesis, dog's first proöstrus bleeding occurred at the age of six months, no vaginal pathology was observed during this period, and the patient owner did not observe the dog mating. During vaginal examination, necrotic areas were detected in the completely prolapsed vaginal tissue. Urinary bladder was catheterized, and it was determined in normal position. Complete blood count and some biochemical parameters were evaluated. As a result, moderate leukocytosis and anemia were observed, but no abnormality was detected in biochemical parameters. In ultrasonographic examination, it was determined that the dog, was approximately 40 days pregnant and that there was no heartbeat in the puppies. For treatment ovariohysterectomy and surgical intervention to the prolapsed vagina were performed. During laparotomy, it was observed that the posterior side of the right uterine horn had a 180° torsion both around its own axis and the left uterine horn. After ovariohysterectomy, the fully prolapsed vaginal tissue was extirpated and sent to pathology for histopathological examination. As a result of histopathology, severe inflammation and leiomyoma were detected in the vaginal tissue. It is thought that due to the increasing progesterone during pregnancy, growth occurs in vaginal leiomyoma and the prolapsed part of the vagina increases and becomes more apparent. It is estimated that torsio occurs in the uterus, which is stretched due to this growth and has an increase in volume due to pregnancy. In the presented case, it was concluded that prolapsed vagina cases in dogs can be seen in the first cycle, can be accompanied by benign tumors, and can cause torsion uteri in pregnant dogs. It was recommended that such complicated cases should be evaluated with detailed clinical and histopathological examination.

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1. Introduction

Vaginal masses protruding from the vulva may result from vaginal fold prolapse (VFP), true vaginal prolapse (TVP), vaginal neoplasms, uterine prolapse, urethral neoplasia, clitoral hypertrophy, vaginal polyps, vaginal abscess, or hematomas (1). The degree of vaginal protrusion in dogs is clinically classified into three types (2, 3). Type 1 is defined as mild to moderate protrusion of the vaginal base cranial towards the external urethral orifice. The protruding tissue can be diagnosed by vaginal or vaginoscopic examination, but it cannot be diagnosed through the vulva (2). In type 2, vaginal tissue originating from the base of the cranial vagina prolapses through the vulva and becomes visible through the vulvar labiums. It usually appears as a narrow-based tongue-shaped mass or spherical-shaped mass (4). Type 3 is defined as complete prolapse of the entire perimeter of the vaginal wall (5). It is visualized as a donut-shaped or ring-shaped mass (6). The urethral opening can be easily identified on the ventral side of the prolapsed mass (3). Type 3 vaginal prolapse may be complicated by a retroflexed bladder, which has been reported to cause urethral obstruction leading to life-threatening azotemia. It has been reported that ultrasonography of prolapsed tissues contributes greatly to the early diagnosis of complicated cases (7). Prolapsed vagina cases occur mostly during the proestrus and estrus periods of the estrous cycle of dogs and the situations when serum estrogen concentration is high (50 to 100 pg/mL) (8,9). Vaginal hyperplasia may subside spontaneously during diestrus but usually reappears during the next estrus in 66-100% of cases (9). Vaginal prolapse Type 3 cases were described during pregnancy and especially in the last trimester of pregnancy (2). True vaginal prolapse occurring during pregnancy in dogs is associated with low progesterone levels and high estrogen levels (10). Treatment options are determined related to the severity and degree of the prolapse and use of the dog in breeding. Surgical interventions such as hysteropexy, cervicopexy, amputation of the mass and/or sterilization may be used (11).

Günay Uçmak et al. (12) investigated the amounts of estrogen receptor, progesterone receptor and epidermal growth factor receptors in the vaginal tissue in dogs with vaginal tumor and vaginal fold prolapse and they observed that the estrogen receptor level was significantly higher in dogs with vaginal tumor than in dogs with vaginal prolapse. Vaginal leiomyoma may be oval or round in shape, usually well defined, encapsulated, single or multiple structures (13). Most vaginal leiomyomas in dogs express progesterone receptors and have been reported to respond to treatment with the progesterone antagonist aglepristone, reducing their size (14).

The incidence of uterine torsion during pregnant dog is higher than in non-pregnant ones. In dogs, one or both uterine horns can rotate around their own long axis or around each other. In some cases, the uterus may even torsion around its axis. It is stated that the possibility of unilateral torsion is higher than bilateral torsion (15, 16). Severe torsion can cause blockage of blood flow to the uterus, resulting in thrombosis or rupture of uterine vessels, congestion, shock, and fetal or maternal death (8). In this case report, the clinical approach and treatment intervention for a case of prolapsed vagina complicated by uterine torsion and vaginal leiomyoma in a young and pregnant dog is described.

2. Case Story

A 7.5-month-old Aksaray Malaklı breed dog, weighing 38 kilograms, was brought to our clinic with the complaint of a mass protruding from the vulva for one month (Figure 1 A). The information was received that this dog had its first cycle at the age of six months and that no pathological conditions were observed in the vagina during this period and there was no pain during urination. In the clinical examination, the mucosa color was pale pink, body temperature was 37.8°C, respiratory rate was 22bpm/min, and heart rate was 110bpm/min. Abdominal palpation showed no signs of pain, and vaginal examination revealed necrotic foci on the ventral surfaces of the prolapsed vaginal tissue. The vaginal cytology was performed and stained with DiffQuick (ADR chemistry, Türkiye) and examined under a light microscope. In the microscopic examination of the vaginal smear revealed plenty of intermediate cells and their clusters. Gynecological ultrasonography (Esaote MyLab One Vet Genoa Gn Italy) was performed transabdominally. A 6.6 MHz convex probe was used for this purpose. No heartbeat was detected in any of the fetuses of the pregnant dog. Fetal measurements taken based on the study conducted by Şendağ et al. (17) showed that the gestational age was on the 40th day according to head-rump length of the fetus.

Total blood count and some biochemical parameters were evaluated (Table 1). Hematological examination revealed anemia, moderate leukocytosis.

Table 1: Results of total blood count and some biochemical parameters.

Tablo 1: Tam kan sayımı sonuçları ve bazı biyokimyasal parametreler.

Parameters	Results (Reference ranges)	Parameters	Results (Reference ranges)
RBC (M/ μ L)	4.76 (5.10-8.50)	PLT (K/ μ L)	544 (117-460)
HCT (%)	29.7 (36.0-56.0)	MPV (fL)	6.3 (5.0-15.0)
HGB (g/dL)	10.8 (11.0-19.0)	GLU (mg/dL)	124 (75-128)
MCV (fL)	62.4 (62.0-78.0)	CREA (mg/dL)	0.57 (0.4-1.4)
MCH (pg)	22.6 (21.0-28.0)	BUN (mg/dL)	9.6 (5-7.2)
RDW (%)	13.3 (11.0-19.0)	TP (g/dL)	6.1 (5.0-7.2)
WBC (K/ μ L)	24.53 (6.0-17.0)	ALB/GLOB	0.65
NEU (K/ μ L)	20.19 (3.62-11.32)	ALT (U/L)	21 (17-78)
LYMP (K/ μ L)	1.10 (0.83-4.69)	ALB (g/dL)	2.4 (2.6-4.0)
MONO (K/ μ L)	2.39 (0.14-1.97)	ALP (U/L)	44 (13-83)
EOS (K/ μ L)	0.77 (0.04-1.56)		

(RBC:Red blood cell, HCT:Hematocrit, HGB:Hemoglobin, MCV:Mean corpuscular volume, MCH:Mean corpuscular hemoglobin, RDW: Red cell distribution width, RETIC:Reticulocyte, WBC:White blood cell, NEU:Neutrophil, LYMP: Lymphocyte, MONO:Monocyte, EOS: eosinophil, PLT:Platelet, MPV:Mean platelet volume, GLU:Glucose, CREA:Creatinine, BUN: Blood urea nitrogen, TP:Total protein, ALB/GLOB:Albumin Globulin ratio, ALT: Alanine aminotransferase, ALB:Albumin, ALP: Alkaline phosphatase)

The surgical intervention was decided as a treatment. Atropine (Atropin®, Teknovet, Türkiye) at a dose of 0.02 mg/kg SC was administered premedication, then induction of the anesthesia was performed propofol (Propofol®, Braun, UK) intravenously at a dose of 4 mg/kg, accompanied by 0.9% NaCl isotonic serum (Polifarma, Türkiye). The general anesthesia was maintained with 3% isoflurane (Adeka İlaç Sanayi ve Ticaret A.Ş., Samsun) and 2% oxygen after the intubation was performed. Aseptic and antiseptic procedures were applied and the operation phase began. During laparotomy, it was observed that the posterior side of the right uterine horn had a 180° torsion both around its own axis and the left uterine horn. After repositioning the uterus, because of the death fetuses, ovariohysterectomy was performed (Figure 2 A). Absorbable suture material was used for all ligatures and sutures (Monocryl No:1, Medeks, İstanbul, Türkiye). Then, the dog was positioned ventrodorsally to remove the prolapsed vaginal tissue. The pelvic area was elevated by placing a transverse pillow under the caudoabdominal area. The protruding mass was disinfected in accordance with asepsis and antisepsis rules and urinary bladder was catheterized to prevent damaging to the urinary tract during the operation, and it was seen that the urethra was in its normal position (Figure 1 B). Kırşan method was performed for the vaginal mass extirpation (18). As described in the Kırşan method, to limit the prolapsed vaginal walls, the dorsal, ventral and both lateral ends of the prolapsed mass were fixed with hemostatic forceps. Then, the cooled mixture which constituted 1mL adrenaline/9 mL isotonic serum injected deep into the tissue along the incision borders. It is given to reduce the amount of bleeding by taking advantage of the vasoconstrictor effect of the cooled diluted adrenaline mixture. After the incision line became white due to the effect of adrenaline and cold, the cutting process of the mass was started by using electrocautery (Erbe VIO300S, 80W, Germany) and the mass was removed

(Figure 2 B) and wound line closed with connell sutures. The extirpated mass was histopathologically examined at the Pathology Department (Figure 3). As a result of istopathology, severe inflammation and leiomyoma were detected in the vaginal tissue. As a postoperative treatment, ceftriaxone IM (Equiceft, Tüm-Ekip İlaç A.Ş. Turkey) at a dose of 25mg/kg for 7 days and meloxicam (Melox, Nobel İlaç San tic A.S. Turkey) at a dose of 0.02mg/kg SC for 3 days were prescribed and sutures on the laparotomy incision were removed on the postoperative 10th day.

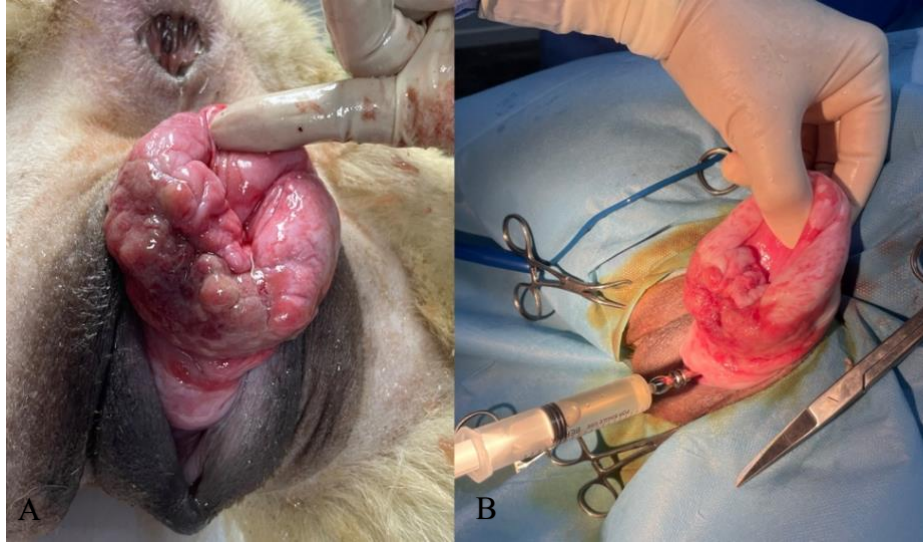


Figure 1: (A) Macroscopic image of the protruded mass, (B) Catheterization of the urinary bladder
Şekil 1: (A) Prolabe kitlenin makroskopik görüntüsü, (B) İdrar kesesinin kateterizasyonu

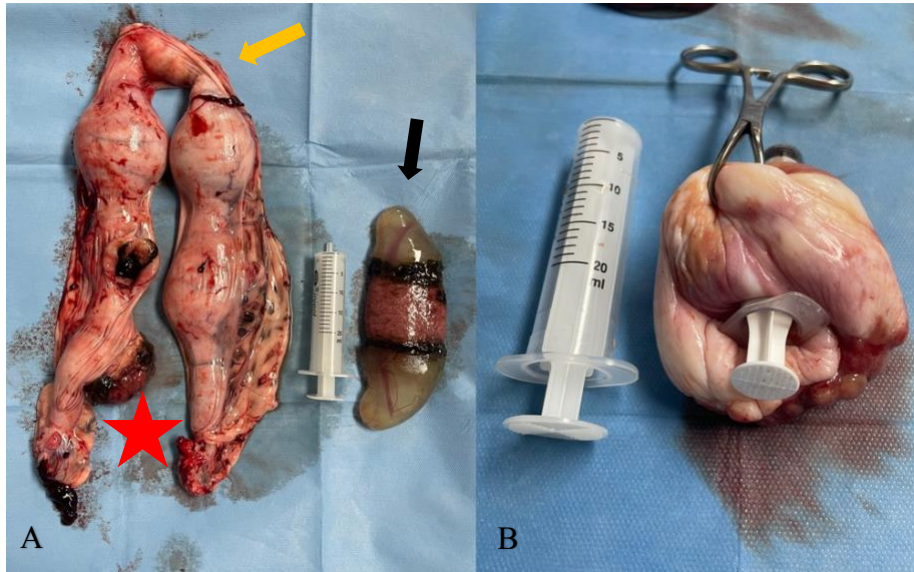


Figure 2: (A) Ovariohysterectomy material; ovaries and gravid uterine horns (red star). Fetus with zonar placenta (black arrow). Torsio area on the right uterine horn (yellow arrow), (B) Extirpated vaginal mass
Şekil 2: (A) Ovariyohisterektomi materyalleri; ovaryumlar ve gebeliğe bağlı büyümüş cornu uteriler (kırmızı yıldız). Zonar placentada içinde fetus (siyah ok). Sağ uterin kornuda torsiyö bölgesi (sarı ok), (B) Ekstirpe edilmiş vajinal kitle

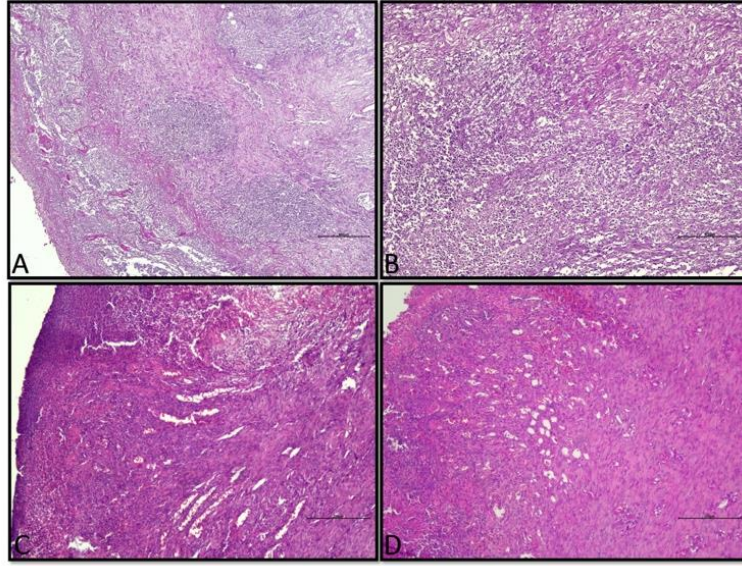


Figure 3: Histopathological examination of the vagina. (A-B) Severe necrosis and chronic inflammation. (C-D): Vaginal leiomyoma. Bundles of smooth muscle cells with non-atypical nuclei and eosinophilic cytoplasm

Şekil 3: Vajinanın histopatolojik muayenesi (A-B) Şiddetli necrosis ve kronik inflamasyon.

(C-D): Vajinal leiomyoma. Atipik olmayan çekirdeklere ve eozinofilik sitoplazmaya sahip düz kas hücreleri demetleri

3. Discussion and Conclusion

It has been reported that prolapsed vagina occurs mostly during the proestrus and estrus periods of the sexual cycle and in the periods close to birth when serum estrogen concentration is high and progesterone level is low (19, 9). It has also been reported that this phenomenon can be seen during the dioestrus period of the sexual cycle, during normal pregnancy (19) and in female dogs that have undergone with ovariohysterectomy (20). Consistent with Johnston et al. (19), the case of prolapsed vagina in the presented case was observed during pregnancy. It has been reported that prolapse vagina cases are generally seen in young female dogs during the first three estrus cycles, and the incidence of this condition is higher in large-breed female dogs and there is no breed predisposition (21,8). Consistent with the researchers (8), the case of prolapsed vagina in the presented case occurred in a young, first-estrus and large-breed dog. Vaginal tumors in female dogs are mostly benign smooth muscle tumors (8). Both estrogen receptor (ER) and progesterone receptor (PR) are located in the vaginal wall of dogs, in the nuclei of epithelial cells, in the stromal cells of the mucosa and in the smooth muscle cells of the muscle layer (22). Considering the presence of PRs in such tumors, aglepristone can be recommended as a therapeutic option and successful results have been reported using it in a 12-year-old unspayed female dog with vaginal fibroma (23). Benign vaginal tumors that have progesterone receptors like fibroleiomyoma can be reduced in size with progesterone receptor antagonist drugs such as Aglepristone (24). Cases of leiomyoma seen in the genital tract in female dogs are associated with estrogen-secreting tumors and follicular ovarian cysts (25). Steroid hormones, especially oestrogens, are thought to play a role in the pathogenesis of leiomyomas because of the fact that dogs with genital leiomyomas also have follicular cysts, oestrogen-producing tumours, endometrial hyperplasia and mammary neoplasia (26, 27). In the current case, it was observed that the leiomyoma masses were smaller in size during mating and therefore did not pose any problem during natural mating, and may have grown under the influence of progesterone during pregnancy. Leiomyomas have been reported to occur together with ovarian luteoma (28), but contrary to the researchers, no pathology was observed in the ovaries in this case. Although a benign tumor was detected in the vaginal tissue of the pregnant dog in our case, operative intervention was preferred in the treatment, contrary to the researchers (24,23,29) reported that vaginal prolapse occurring in the last period of pregnancy has no effect on the onset of labor. It has been reported that puppies can be born from an intact uterine horn that is not torsioned or, in the case of partial torsion, from the caudal aspect of the rotation area where the

uterine horn is torsioned (30). Although uterine torsion is a rare cause of dystocia in female dogs, it has been associated that severe uterine contractions related to fetal fluid deficiency and instability of the uterine horns in late pregnancies, or situations such as jumping from a height, may also cause uterine torsion (31,16). Contrary to researchers (30,31,16), in the presented case, any live fetus was not observed because the uterine torsion was formed at the uterine horns and it is thought that the uterine torsion was caused by vaginal prolapse.

The recommended treatment method for torsion with ischemic necrosis of uterine structures is ovariohysterectomy without detorsion of the torsioned part. Detorsion can lead to reperfusion injuries and the release of toxins into the systemic circulation, resulting in life-threatening emergencies (32). In previous studies, 180° (31) and 360° (33) were reported in pregnant dogs. In non-pregnant dogs, unilateral torsion of 720° has been reported (34). In the presented case, 180° torsio was started at the right uterine horn and ended to include both uterine horns and it is thought that fetal life ends due to the interruption of vascular perfusion of the uterine horns due to torsio uteri.

It is thought that due to the increasing progesterone during pregnancy, growth occurs in vaginal leiomyoma and the prolapsed part of the vagina increases and becomes more apparent. It is estimated that torsio occurs in the uterus, which is stretched due to this growth and has an increase in volume due to pregnancy. In this case, it was concluded that prolapsed vagina cases in dogs can be seen in the first cycle, can be accompanied by benign tumors, and can cause uterine torsion in pregnant dogs. It was recommended that such complicated cases should be evaluated with detailed clinical and histopathological examination.

Conflict of Interests

The authors do not have any personal or financial conflict of interest within the scope of the study.

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Ethical Approval

An ethical statement was received from the authors that the data, information, and documents presented in this article were obtained within the framework of academic and ethical rules and that all information, documents, evaluations and results were presented in accordance with scientific ethics and moral rules

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