

## Case Report / Olgu Sunumu

# A case of vaginal hyperplasia occurred the last trimester of pregnancy in a Kangal bitch

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**Abstract:** Vaginal hyperplasia is characterized clinically as the protrusion of edematous hyperplastic mucosa tissue through the vulvar lips. Generally, it is formed during the proestrus and estrus periods in dogs. In this case report, 12 months old, pregnant Kangal breed dog with a mass in the vagina was presented with pre and postoperative findings. The bitch without any genital problems at pro/estrus stages was mated about two months ago. During the clinical examination, it was detected that bitch was in the second stage of labor and had type III vaginal hyperplasia. After the delivery of nine puppies without complication, the bitch was placed under general anesthesia and the hyperplastic tissue was removed surgically. Although no hyperplasia history at pro/estrus stages of the bitch, the fact that vaginal hyperplasia was observed in the last trimester of pregnancy is remarkable. Interestingly, this hyperplastic mass did not cause dystocia during all the puppies' delivery in this case. In conclusion, in pregnant dogs, routine genital exams should be performed once at least until parturition to control vaginal structural integrity.

**Keywords:** Bitch, pregnancy, vaginal hyperplasia.

## Kangal ırkı bir köpekte gebeliğin son trimesterinde meydana gelen bir vajinal hiperplazi olgusu

**Özet:** Vajinal hiperplazi, klinik olarak ödematöz hiperplastik mukoza dokusunun vulva dudaklardan dışarı çıkması olarak karakterize edilir. Genellikle köpeklerde pro/östrüs dönemlerinde şekillenir. Bu olgu raporunda, 12 aylık, vajinasında kitle bulunan Kangal ırkı gebe bir köpeğin ameliyat öncesi ve sonrası bulguları sunuldu. Proöstrüs ve östrüs dönemlerinde herhangi bir genital problemi olmayan köpek yaklaşık iki ay önce çiftleştirildi. Muayene sırasında, köpek doğumun ikinci aşamasında idi ve tip III vajinal hiperplazisi vardı. Dokuz yavrunun sorunsuz şekilde doğmasından sonra, köpek genel anestezi altına alındı ve hiperplazik doku cerrahi yolla uzaklaştırıldı. Siklusun pro/östrüs dönemlerinde hiperplazi öyküsü olmamasına rağmen, gebeliğin son trimesterinde vajinal hiperplaziye rastlanması dikkat çekicidir. İlginç şekilde, bu hiperplastik kitle hiçbir yavrunun doğumunda güç doğuma neden olmamıştır. Sonuç olarak, gebe köpeklerde doğuma kadarki süreçte vajinal yapının bütünlüğünü kontrol etmek amacıyla en az bir kez rutin genital muayeneler yapılmalıdır.

**Anahtar sözcükler:** Dişi köpek, gebelik, vajinal hiperplazi.

Vaginal hyperplasia is defined as a protrusion of edematous vaginal tissue into the vaginal lumen and often through the vulvar lips of the bitch. It has been reported as the high estrogen level during the follicular phase of cycles in young bitches, etiologically (4, 10). Clinically, there are three types: type I, type II, and type III. In cases of type I vaginal hyperplasia, the hyperplastic tissue has progressed slightly towards the base of the vagina but is not seen between the vulvar lips. Type II is characterized

by protrusion of anterior floor and lateral walls of the vagina through the vulvar opening giving protruding mass the shape of a pear. In type III, the vaginal wall is fully eversion and is visible the entire circumference of the vaginal mucosa outside of the vulvar lips (7). The initial treatment schedule includes hormonal therapy with GnRH (Gonadotropin-Releasing Hormone) analogue or hCG (Human Chorionic Gonadotropin) analogue that causes induction of ovulation and shortening of the estrus. But,

the radical treatment of vaginal hyperplasia is to surgically remove the mass. The operative method consists of submucosal resection or vaginal amputation. Nevertheless, there is a possibility of recurrence during the next follicular phase (1, 7). Another treatment option is ovariectomy or ovariohysterectomy in bitches that do not want to conceive (12). The objective of this case was to determine the effect of type III vaginal hyperplasia events that occurred on the 40-45th days of pregnancy on parturition.

The material of this case presentation was a bitch that 12 months old, Kangal breed, weighing 36 kg. The bitch was referred with protruded mass from the vagina to the Clinic of Obstetrics and Gynecology, Faculty of Veterinary Medicine, Fırat University. According to the owners, she mated about 60 days ago without any genital problems at mating day, also the following days. But, at 40-45th days postcoitally, a pink-red colored formation emerged from the vulva has seen. On clinical examination, rectal temperature, heart rate, respiratory rate, and blood tests were within normal limits. The vaginal wall is fully eversion and is visible the entire circumference of the vaginal mucosa outside of the vulvar lips. Vaginoscopy and digital palpation were performed to identify any lacerations, perforations or ruptures and no such lesions were found. Cervix was found to be dilated during vaginoscopy. Also, a fetus inside the amniotic sac was seen. The case was diagnosed as type III vaginal hyperplasia and the bitch was being in the second stage of labor (Figure 1). To obtain information about signs of fetal viability and fetal stress, fetal heart rates were evaluated from each visible fetus by using a 5 MHz convex probe in M-mode by transabdominal ultrasonography (Mindray DC-T6 Color Doppler Ultrasound System; Shenzhen, China) as described by Gil et al. (8). It was found that fetal

distress had not started yet, because the fetal hearts in the fetuses were more than 200 beats per minute (bpm) in each visible fetus. Moreover, according to the results of X-rays, the presentation, position, and posture of the first fetus entering the birth canal were found suitable for vaginal delivery. Additionally, nine puppies were determined by counting the fetal heads. To take the support of the Ferguson reflex, it was massaged to the dorsal wall of the vagina. A total of nine live puppies were born through the birth canal in six hours. After delivery, the dam and puppies were hospitalized. To remove surgical treatment of the protruded mass, she was undergone general anesthetized with Xylazine hydrochloride 2 mg/kg IM (Rompun® 2%, Bayer, Turkey) and 10 minutes later Ketamine hydrochloride (Ketasol®10%, Richterpharma, Austria) at the dose of 10 mg/kg. Preoperatively, a catheter (size 8 gauze number) was applied to the *orificium urethra externa* to prevent damage to the urethra. As described by Ahuja et al. (1), the horizontal-U suture was applied, covering all layers of the mass and passing through each other with absorbable sewing thread (PGLA, USP:2, Medeks, Turkey). After the sutures were completed, protruded mass was carefully excised in a circumferential pattern (Figure 2). The urinary catheter was removed after the completion of the surgery. Postoperatively, Penicillin G-Streptomycin sulphate (Vetimisin, Vetas, Turkey) was administered intramuscularly at the dose of 0.25ml/2.5kg for 5 days and Meloxicam (Meloxicam, Bavet®, Turkey) was administered subcutaneously at the dose of 0.2 mg/kg for 3 days. Although a spaying operation was recommended to reduce the risk of recurrence, it was not performed because of the owner's refusal. The bitch was observed that she was followed up periodically in the postoperative period and the general condition of the bitch was good without any complication.



**Figure 1.** The extraction of the puppy from the vagina with type III hyperplasia.



**Figure 2.** The macroscopy of the excised mass after removing by circumferential incision.

Vaginal hyperplasia is a rather uncommon condition in pregnant bitches and many factors play role in its formation, and usually occur in young bitches during the proestrus or estrus stages when blood estrogen levels are high (10). In the case presented by Ajadi et al. (2), similar to the case presented by us, vaginal hyperplasia was observed in a young bitch. But, in this case, vaginal hyperplasia was in the pregnant dog, and it was without dystocia. The incidence of dystocia in canine practice varies between 2-5%. As evaluating etiologically, it has been reported that the dystocia cases occur caused by maternal (75.3%) and fetal (24.7%) reasons, respectively (4, 10). Among maternal disorders, vaginal hyperplastic masses are known to make the birth canal shrinking and cause dystocia. In such cases, it is recommended to remove the fetuses by cesarean section (3, 5, 6). In the presented case, vaginal hyperplasia did not cause canal stenosis although it was type III. It was observed that the puppies were born through the normal birth canal without the need for cesarean section. Likewise, some researchers reported that they did not encounter dystocia (9, 11). In the case presented by Gouletsou et al. (9), in 47<sup>th</sup> days of pregnancy, in a case of vaginal hyperplasia, the bitch was hospitalized and local therapy was continued for four days until parturition of four healthy puppies. In the case we presented, it is thought that the hyperplastic tissue begins to form due to the increased estrogen level in the last period of pregnancy. In the presented case, a spaying operation was recommended to reduce the risk of recurrence, but the owner was reluctant to allow it. Only

the hyperplastic tissue was removed by operation. In the case presented by Samal et al. (13), only the hyperplastic tissue was amputated without ovariohysterectomy. Similar studies support this knowledge (2, 11, 14). In the presentations of some researchers, ovariohysterectomy was performed to prevent the recurrence of vaginal hyperplasia and because the animal owners did not want to conceive (5, 6).

In conclusion, although the canine vaginal hyperplasia cases were generally seen during the proestrus and estrus stages of the cycle, what makes this case important is that the vaginal hyperplasia was seen in the last trimester of pregnancy, and the mass was first noticed approximately 15 days before parturition. Also, it was observed that the vaginal hyperplasia that occurred in the last trimester of pregnancy was not an obstructive effect in the parturition process in this case. To control vaginal structural integrity, routine genital exams should be performed once at least during pregnancy. In cases with vaginal hyperplasia, the whole parturition process should be monitoring with a clinician accompanied. Following deliveries, removing of vaginal mass and spaying operation should be done for recurrence management.

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### Ethical Statement

This study does not present any ethical concerns.

### Conflict of Interest

The authors declared that there is no conflict of interest.

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